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Seamen's Act Will Not Be Evaded

New Law is Accepted at Face Value by Lake Carriers' Association Which Pledges Its Good Faith to Carry It Out to the Letter

ONE OF THE several inconsistencies in the Seamen's act arises from the spreading of its deep sea provisions over lakes, bays, sounds and rivers alike, as though inland sailing could possibly find its counterpart on the ocean. Take the traffic of the Great Lakes, for instance. It is a seasonal business; as has been most aptly remarked, it opens with the violet and closes with the corn. The traffic is of enormous volume and can only be handled by a close unity of docks, elevators and ships in which lost motion is reduced to a minimum. The team work of the lakes is a marvelous thing to see. If the work is not done, the whole country suffers, for the commerce of the lakes deals with the necessities of life—the grain that feeds us, the coal that provides us with power and the iron ore which enters eventually into practically all industrial activities. Why seek to impose deep sea conditions upon a trade like this? Nothing could be more dissimilar than lake and ocean trade. Lake vessels are rarely out of sight of land and can only operate part of a year; deep sea vessels may never see land for weeks or months, but can operate all the year around.

Will Obey the Law

Lake vessel interests fought the Seamen's bill as vigorously as the coast interests fought it. They did all they could to convince congress that it was an unwise thing to pass; but having failed to defeat it, they have accepted it as part of the law of the land to be as strictly observed by all navigators as are the rules of the road. The Lake Carriers' Association, through its executive committee and its board of directors, has taken a very decided stand on the matter. It has issued instructions to the masters of vessels to observe the bill to the letter and to exercise the utmost endeavor to put its provisions into practice. It is, we believe, the first organization of vessel

owners to accept the law on its face and to pledge its good faith to a strict compliance with its provisions in so far as it is humanly possible to comply with them. The association has issued the following instructions to the masters of the vessels operating under its supervision.

Instructions Are Positive

"The Seamen's bill is now law and will become effective on Nov. 4. The point for every master to bear in mind is that it is part of the law under which he navigates. It is to be as carefully observed as are the rules of the road. If every master does his best to put into effect the provisions of this bill he will have the government to support him, for the government is back of the law. If any provisions of the bill are not workable, the best way to prove it is to make a sincere effort to make them work. Every master has been supplied with a copy of the Seamen's act as well as with a brief of the provisions directly affecting the lakes and the interpretation placed upon the measure by the department of commerce and the supervising inspector general of the steamboat inspection service. The matter has been put into as simple form as it is possible to put it, in order that its meaning in the mind of every master might be as uniform as possible. The association expects every master to carry out in good faith all the provisions of the law.

"Neither effort nor expense must be spared to enforce it to the letter. If any situation develops which is not clear in your mind or which makes an infraction of the law seemingly necessary, take it up at once with the nearest local inspector. At no time are you expected to wilfully disregard the provisions of the act. A thorough respect for the law is your safeguard."

Pacific Mail Passes Into History

A Survey of the Career of a Great Steamship Company That
Carried American Flag on the Pacific for Seventy Years

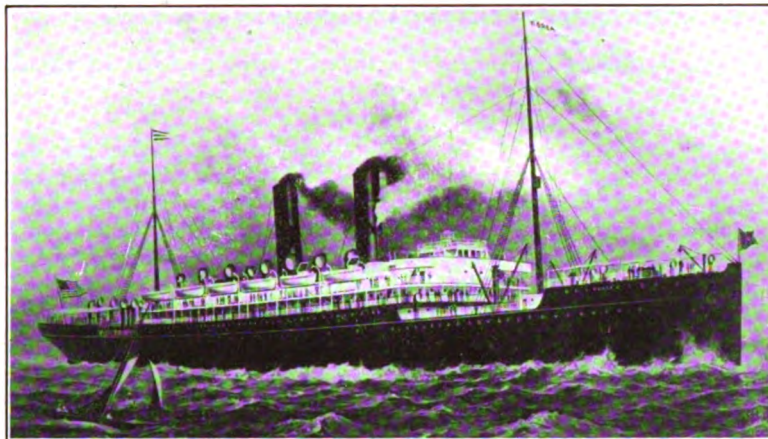
By A. A. Willoughby

THE passing of the Pacific Mail Steamship Co. after nearly 70 years of eventful history, eliminates one of the greatest factors in the growth of San Francisco as a world seaport and marks the virtual disappearance of the American flag from transpacific maritime commerce. Ever since the entry of the heavily subsidized Japanese lines into the transpacific field, vessels flying the American flag have faced an increasingly serious problem.

The decision of the company to go out of business, coincidently with the going into effect of the seamen's act, has been attacked on many sides by proponents of the measure. The fact remains that the company definitely retires and with it goes a large amount of money which has been annually spent in San Francisco for boat repairs and provisions.

Practically all records of the company's business were burned in the fire of 1906, so that no records prior to that date are available, but it has been possible to secure some historical data of early operations of the company. A petition for the establishment of a steamship service between New York and Oregon by way of the Straits of Magellan and Panama led to the awarding of a contract, early in 1847, to W. H. Aspinwall, who, with Gardiner Howland and Henry Chauncey, incorporated the Pacific Mail Steamship Co., April 12, 1848, with a capital stock of \$500,000. Contracts were let for the construction of three steamers of the paddle wheel type, each of 1,000 tons capacity. These were named CALIFORNIA, OREGON and PANAMA. The government contract carried with it an annual subsidy of \$200,000. San Francisco was made a port of call. CALIFORNIA, Captain Cleveland Forbes, left New York, Oct. 5, 1848, on her maiden trip. No passengers were carried until she reached Panama. The news of the gold strike had set travel in motion westward, and a number of passengers were waiting at Panama to be carried to San Francisco. The boat arrived in port Feb. 28, 1849, after a

voyage of 145 days from New York, and anchored off Clark's Point, there being no piers along the San Francisco waterfront at that time. OREGON followed, two months later, with 250 passengers. These vessels remained in service for a number of years, PANAMA being retired in 1865. OREGON was sold in 1869 and CALIFORNIA in 1875. Encountering competition in 1850, the company added several new ships. Late in the fifties and during the sixties, the company constructed a number of wooden side wheelers, the completion of the Panama railroad in 1855 creating a large feeder trade by the way of the isthmus.



PACIFIC MAIL STEAMSHIP KOREA

Two factors led to the establishment of steam service to the Orient in 1867. These were the completion of the Central Pacific railroad across the Sierras, forming a link in a transcontinental railway, and the granting of an annual subsidy of \$500,000 by the government for a monthly mail service between San Francisco and Hong Kong.

First Sailing in 1867

The first sailing of this service was made from San Francisco Jan. 1, 1867, by the steamer COLORADO, which carried among her cargo, 1,000 barrels of flour and \$581,700 in specie for China and Japan. Captain Bradbury was in command, the round trip occupying 78 days. After two more round trips the service was augmented by GREAT REPUBLIC and CHINA. Five round trips were made during the first year, nine the second and 12 the following year. NEW YORK and JAPAN were added to the fleet in

1868, and AMERICA in 1869. The side wheel steamers ALASKA and ARIZONA were put in service in 1871. ALASKA, coming by way of Hong Kong, brought 54,565 packages of tea, 282 bales of raw silk and a miscellaneous cargo, the most valuable that had ever been received in San Francisco. Semi-monthly service was inaugurated in 1872 and continued for several years.

The company was practically bankrupt in 1893, when C. P. Huntington, of railroad fame, having confidence in the orient and its trade possibilities, interested himself in the company and put it on its feet. R. P. Schwerin was made vice president and general manager, which position he has since held. By strict economy and improved methods of operation, a floating indebtedness of over \$2,500,000 was wiped out through the earnings of the company under the new management, in four years' time, and a surplus was accumulated, large enough to enable the resumption of dividends, which were continued until 1899, at which time the necessity for larger vessels for the transpacific trade was seen. From that date the surplus savings were utilized for the purchase of new ships.

Contracts were awarded in 1899, for the construction of two steamers of 18,000 tons displacement and 21 knots speed, which were completed and put in service in 1902, and named KOREA and SIBERIA. Each is 572 feet long and has an indicated horsepower of 18,000. SIBERIA in 1905 made the trip from Yokohama to San Francisco in 10 days and 10 hours, a record which stood for a long time. MONGOLIA and MANCHURIA, added in 1904, are 618 feet long and have a tonnage displacement of 27,000.

These steamers were long considered the finest in the Pacific service.

MONGOLIA, MANCHURIA, KOREA, SIBERIA and CHINA have already been sold to the Atlantic Transport Line, a subsidiary of the International Mercantile Marine, and are now in the service of that company.

An idea of the extent of disbursements of the Pacific Mail in San Francisco is gained from the following figures for the fiscal year ending April 30, 1915:

Repairs	\$333,000
Wages of employees.....	759,000
Fuel	767,000
Supplies other than fuel.....	678,000
Port dues and wharfage.....	133,000
Stevedoring	216,000
Other expenses	123,000

\$3,009,000

The bulk of the repairs have been made in San Francisco. The expenditures in San Francisco in 1906 by the company were more than \$5,000,-

Cannot Compete Under New Law

"Despite all reports to the contrary", declares A. J. Frey, assistant general manager, "the Pacific Mail is going out of business because it is financially unable to comply with that requirement of section 13, of the La Follette seamen's law, which provides that 75 per cent of the crew in each department must speak the language of the officers. This, in effect prohibits the use of Asiatic crews. Subsidized Japanese vessels operating on this route, competing with us and fixing the freight and passenger rates for our vessels, will, under the seamen's law, be permitted to carry Asiatic crews at the oriental wage scale, because they carry Japanese officers. The rest of the provisions in the bill have either already been placed in operation by our company, or could easily have been adopted. Figures compiled by the accounting department of our company show that the present annual wage total paid on the five ships we own in the transpacific trade amounts to \$276,540.72. This section of the bill, on the basis of deep sea wages, would bring this wage total to \$616,731.60, an increase of \$340,190.88, and together with the added cost of feeding, would make a total annual increase of \$495,425.38. Similar expenses for the other two ships we operate would bring the latter figures to \$620,542.80. By the time the bill is in effect, there will not be a single merchantman in the oriental trade on the Pacific ocean, flying the American flag".

Henry B. Ford, agent of the Erie Railroad Lake Line, died in Chicago on Oct. 10. Mr. Ford was formerly assistant to T. T. Morford when the latter was general western agent and upon the removal of Mr. Morford from Chicago, he was made general agent. He had been in the employ of the Erie for over 50 years continuously.

The Board of Commissioners of the Port of New Orleans has published the report of Ford, Bacon & Davis, engineers, who were retained to make an analysis of the operations of the port of New Orleans.

Close Inspection is Urged

Plans of Vessels Should be Approved

by Proper Authority to Prevent Accident

THE campaign for promoting a more serious consideration of accident prevention, inaugurated by *The Marine Review* in its October issue, continues to attract widespread interest among vessel owners, ship builders, deck and engineering officers, and in fact all of the many interests associated with the operation of ships. The paramount importance of preventing a disaster rather than installing suitable devices for meeting a disaster after it has occurred, apparent-

advanced recently by J. L. Anderson, president of the Anderson Steamboat Co., Seattle, Wash., in a letter to George Uhler, supervising inspector general of the steamboat inspection service. Mr. Anderson carries the question of prevention to its ultimate limit, that is, a closer inspection of a ship while it is being built in order to insure its proper design and construction.

This letter has been forwarded to *The Marine Review*, owing to the "splendid treatment of the safety problem in the



PACIFIC MAIL STEAMSHIP MONGOLIA

ly has appealed strongly to all those associated with marine affairs.

How Campaign Started

It will be recalled that the article in question was based largely upon the replies received to letters addressed by *The Marine Review* to more than 150 steamship companies carrying passengers in American waters. In this letter, information was requested relative to the safety work of the various companies and the measures they have adopted in preventing accidents. The gratifying response received alone served to indicate the deep interest taken by the various steamship companies in the safety first movement. The plan quite generally followed was the organization of safety committees on the vessels themselves, placing the duties of the safety director in the hands of the general manager or operating superintendent, coupled with frequent personal inspection of the vessels by some of the higher officials, stricter attention to the question of keeping intoxicants from the crew, and the maintaining of a stable organization. In addition, some of the companies stimulate their safety work by offering bonuses to the ships making the best records in accident prevention.

An interesting suggestion directly in line with the prevention of accidents was

leading article of last month's issue". The suggestions advanced are of sufficient interest to warrant the publication of this letter practically in full, as follows:

"Discussion of shipping conditions has been rife in this country since the enactment of the seamen's bill, and the terrible EASTLAND tragedy on the Chicago river. The country's attention has been directed to the operation of ships as at no other time in history. With that as an excuse, I wish to offer a suggestion as a possible solution of the problems of safe navigation on inland and coastwise waters, from the viewpoint of a steamboat operator, owner and designer, and a builder of excursion boats of this type, of 25 years' experience. It is my firm belief that such accidents as that to EASTLAND can be averted, and the safety aimed at by the provisions of the seamen's bill attained, by government inspection of plans and specifications of boats before construction.

"You know and I know that there are many inexperienced men in the designing and ship building field who have inadequate knowledge of stability, materials, workmanship and design, and many who, possessing this knowledge deliberately ignore these principles for selfish reasons. Absolute safety, as far as that is possible from sound construction along recognized principles of the ship building business, has been sacrificed for speed and passenger-carrying capacity. I have always contended that there is a happy medium, that the length, breadth and depth of craft and the materials of construction can conform to certain

standards demanded by intended service, and the vessel be absolutely safe as far as that is possible and still have sufficient speed and carrying capacity for all practical purposes.

"Some have regarded me as a crank on the proposition of beam, and it is certain that the eight vessels of the Anderson fleet and the steamers that I have built for other concerns will never be bothered by lack of beam. Yet there has been little criticism of the speed of my boats for the services in which they are operating, nor of the weight of the materials of which they are constructed.

"Therefore, I believe that the head inspectors of each district should inspect the plans and specifications of every private vessel before built and insist that they conform to recognized standards before the builder be allowed to proceed. There has never come to my knowledge a case where a new boat, fresh from the builders, has been condemned. Some alterations have been demanded, but these in the majority of cases are minor and deal with surface faults. Yet those same government-inspected boats have later been the cause of horrible disasters.

"It is a mighty hard thing to condemn a new ship, sleek and trim, representing the expenditure of thousands of dollars. How can the inspector tell that under strain, with hundreds of souls aboard, that the new and apparently perfect craft will not fall apart, unless he knows the materials of which that vessel is built? How under the law as it is at present, can that inspector forbid the operation of the ship which he suspicions is not safe? In my understanding of the law, even if he knew that the materials were not sufficiently heavy, that the ship was improperly fastened or otherwise at fault, he could not forbid her operation. His power, as I understand it, is limited to control of the passenger license and to a few minor details.

"Boats like EASTLAND get by under the present inspection laws and regulations, and when anything happens to such vessels, the blame unjustly falls upon the inspector, and in many cases upon the innocent hired operators. That could not be under the regulation that I suggest. No boats could be built that did not conform to recognized standards with such a law in force, and shipping accidents of the future would be of a nature that only Providence could control.

"In this district we have been favored with inspectors of exceptionally high caliber, who have encouraged safe construction to the very best of their ability and to the limit of their power under the law. They would be capable judges of the plans and specifications of vessels. However, the inspectors should be allowed to call in men of recognized authority to aid in such judgment if they thought best, or better still, a board in each district should be organized to establish standards of ship construction to fit local conditions. Such a board should be composed of leading naval architects, builders and owners, with the inspectors as the presiding officers. The standards adopted should henceforth guide inspection.

"Such rules should meet with universal approval. They would increase the responsibility of the inspector, yet be a protection to him. They would protect the naval architect, who has gained his knowledge through hard study and long experience, from the inroads of incompetents and freaks. They would safeguard the reputations of responsible

officers of ships. They would bring higher class work to the builder. They would be an insurance for money expended to the owner, and above all, an insurance of safety to the traveler."

Captain Anderson's Career

Captain Anderson's suggestions as contained in the above letter, merit considerable attention as he has been closely associated with the operation of ships since early boyhood. His father was an officer on deep sea ships operating out of Liverpool. His grandfather and uncles owned vessels of the famous old Olson line, which carried coal, lumber and general freight from Stockholm to Gottenburg through Sweden's great in-



CAPT. J. L. ANDERSON

land seas, Lake Winnen, Lake Wiaten and Lake Maleron.

Captain Anderson was born in Gottenburg in 1868 and when 14 years old became cook on one of his uncles boats. In 1888, he went to Seattle and since that time has been closely associated with the coastwise trade of that port. He has served as deck hand, able seaman and officer of vessels engaged in the Alaskan trade from San Francisco, Portland and Seattle and has held all posts from engineer to master on Puget Sound steamers. He finally became an operator and now controls a fleet of seven steamers and a large steel ferry operating on Lake Washington. In addition, the Anderson Steamboat Co. has shipyards on fresh and tide waters.

Has Safety Department

The vice president of a company operating in the coastwise trade out of New York city explains the safety work of his company as follows:

"As far back as 1900 we established what might be called a 'safety depart-

ment', though it was not so designated. We had an inspector of fire and life saving service, who might properly be considered similar to a safety director. The duty of this inspector was to look after the equipment, to organize and to drill the crews, to keep records of the drilling of the crews, together with records of inspections and conditions of the equipment. He also made reports to the government and to the head of his department as to fire and boat drills. We never organized what is called a 'safety committee' nor have we ever utilized the bonus system. Naturally, records of all accidents are kept, but not necessarily in chronological order. The operation of our insurance and claim departments require that a careful record be kept. It has not been possible to publish anything that might be designated as 'safety bulletins'. We have an organization in our marine department which brings our men together once a month, and at the meetings of this organization, are discussed many of the difficulties encountered and other subjects of interest, and lectures on topics of interest to the department are given frequently."

National Marine League

The National Marine League, with offices at 18 Old Slip, New York, has sent letters to many of the leading firms in New York and elsewhere, asking them to become founder members of the league by sending checks for \$250 to J. P. Morgan & Co., the repository of funds for the organization. The letter says:

"Every commercial and financial interest has so direct a personal concern in the rehabilitation of our merchant marine that the acceptance of this invitation should have its place as an item of business expense. Over 90 per cent of our ocean transportation is controlled by foreigners and our foreign commerce is dependent upon and subservient to their convenience and interest.

"The average citizen does not realize the above nor the fact that the expansion of foreign trade means the bringing of new money into the country, making possible the increase of domestic business, with greater opportunities of employment for himself.

"With our form of government it is what the average citizen demands that is accomplished. It is the purpose of the league to arouse the entire country to our maritime needs and to the important economic truth of the necessity of an American merchant marine and its intimate connection with the prosperity of the individual. It is for such a campaign that the funds of the league will be used."

The following are some of the firms and individuals already associated with the league: The American Tobacco Co., John D. Archbold, G. Amsinck & Co., C. K. G. Billings, John J. Bausch, Rochester; Bethlehem Steel Co., John E. Berwind, John D. Barrett, Andrew Carnegie, Chester W. Chapin, Lewis L. Clark, William P. Clyde, William W. Cook, Dreicer & Co., Emerson McMillin & Co., Farmers' Loan & Trust Co., H. E. Huntington, Julius Kruttschnitt, Kuhn, Loeb & Co., and the Midvale Steel Co.

Instructions Are Issued to Masters

The Lake Carriers' Association Acquaints Masters With the Sections of Seaman's Act Applicable to Great Lakes

THAT buffeted and storm-tossed bit of legislation known as the Seaman's bill, goes into effect Nov. 4, somewhat shorn of its powers, it is true, but nevertheless showing a formidable front. While its application to foreign vessels has been much modified by recent rulings of the department of commerce, it has undergone no modification whatever in its application to domestic shipping. The bill, therefore, confronts most American vessel owners of the coasts and Great Lakes in the precise form in which it was passed, unrelieved by any ruling of any department of the government. One-half of the tonnage flying the American flag is on the Great Lakes and the issue is, therefore, one of paramount importance to lake interests.

The executive committee and board of directors of the Lake Carriers' Association, controlling about 450 vessels, met on Sept. 29 to consider the measure and after a thorough discussion reached the unanimous conclusion that nothing remained to be done except to take the bill as it stood and endeavor to observe its provisions to the letter.

The following resolution was adopted:

"That the president be authorized and instructed to appoint a committee to draw up a draft of the law; that is, pick out and make a draft of the law as it affects our lake situation, and that that draft be sent to members of the Association with instructions to notify their masters to carry out the law as there set forth, in so far as they are able to do so."

Instructions From Redfield

The board had before it a copy of a letter which Secretary Redfield of the department of commerce had sent to the collector of customs on the Great Lakes relative to the enforcement of the Seaman's law. This letter simply repeated the instructions which Secretary Redfield had, under date of Sept. 27, sent to the supervising inspector general of the steamboat inspection service. These instructions were as follows:

"My attention is called to the fact that the requirements of the Seaman's Law upon the Great Lakes take effect but 26 days before the closing of navigation upon these waters, and that upon the one hand there may be cases in which it will be impracticable to make the necessary changes upon the vessels to provide the accommodation which will be necessary under the new law while they are continuously in active service during the present fall, and upon the other hand that the continued and incessant use of all available vessels will be necessary as late in the season as possible in order to transport the enormous crops of the northwest for the prompt move-

ment of which the rail facilities of the country may for a time be insufficient.

"The problem which your force of inspectors must face during November will be that of enforcing the law without, upon the one hand, suspending the traffic or, upon the other, permitting themselves to be blinded by the temporizing methods of any one who may wish to save present expense in the possible thought that changes in the law may be secured during the coming winter. Both of these extremes are to be carefully avoided.

"The question may in part resolve itself into one of good faith. The vessel owners have had ample notice and are obligated to do all possible to be ready to meet the law fully when it takes effect. Your inspectors should therefore look to all to obey the law and, in cases where that obedience may not be complete, will report the facts which will be considered by the department on the particular merits of each case. The failure on the part of a vessel owner to take every practicable step toward preparedness for complying with the law will not be considered an excuse for the lack of such compliance. Those, however, who in good faith do the utmost practicable to be ready and who, when the law takes effect, are striving to comply with it will be given the consideration that the facts may warrant when considering penalties for non-compliance."

President Livingstone had asked the steamboat inspection service for a ruling on the provision of Section 2 which reads as follows: "Seamen shall not be shipped to work alternately in the fire room and on deck, nor shall those shipped for deck duty be allowed to work in the fire room or vice versa."

To this request President Livingstone received the following reply under date of Sept. 16 from Supervising Inspector General George Uhler:

"The purpose of these provisions in the Seaman's Act was to stop the practice of having men employed on deck do work in the coal bunkers or fire room, and be called from this duty to do work on deck, and that purpose is so accepted and interpreted by this bureau. In certifying a steamer upon which it is necessary to have men in addition to the firemen for the purpose of passing coal or doing other necessary fire room work, such necessary men will be designated on the certificate as coal passers, and sailors of sufficient number will be designated for deck duty.

"This will mean that the duties of the men designated as coal passers will be confined entirely to the fire and engine room department, and they will not be allowed to take part in deck service; likewise, the duties of men designated as sailors on the certificate of inspection will be confined to deck work, and they will not be allowed to take part in any of the work of the engine or fire room department.

"I do not know that I can make this any clearer, except to say that a master cannot detail his sailors for work in the fire room or coal bunkers, nor can he call for the fire room force to work on deck, except, of course, in cases of emergency, when all hands may be called for any duty directed by the master."

The letters from Secretary Redfield and Supervising Inspector General Uhler were ordered to be transmitted to the masters together with a complete transcript of the sections which apparently embrace the lakes. These include Sections 1, 2, 3, 4, 11, 12, 13 and 14. Section 1 provides for filling out the crews in case of deser-

tion or casualty and does not materially change existing law. Section 2 provides, among other things, that firemen, oilers and water tenders shall be divided into three watches and that seamen shall not be shipped to work alternately in the fire room and on deck, nor those shipped for deck duty required to work in the fire room, or vice versa, except in cases of emergency. Section 3 provides for payment of wages to seamen. Section 4 entitles seamen to receive on demand one-half part of wages then earned at every port where such vessel after the voyage has commenced shall load or deliver cargo before the voyage is ended, provided such demand shall not be made before the expiration of or oftener than once in five days." Section 11 makes it unlawful in any case to pay any seaman wages in advance of the time when he has actually earned them, or to pay advance wages or make any order or note or other evidence of indebtedness to any other person, with certain specified exceptions, or to pay to any person for the shipment when payment is deducted from the seamen's wages. Section 12 provides that no wages due or accruing to any seaman or apprentice shall be subject to attachment in any court. Section 13 relates to the crewing of ships with particular reference to able seamen. Section 14 provides for lifeboats and rafts, their equipment and manning. This section appears to be applicable to passenger ships, but may have some bearing on freighters.

President Livingstone under date of October 5 sent the following letter to all members of the Lake Carriers' Association concerning the action of the board of directors:

"It is only recently we have been able to get rulings from government officials of their interpretation of some parts of the so-called Seaman's law passed at the last session of congress. A meeting of your directors was immediately called to discuss the matter and it was decided that while the time was short between the time these rulings were made public and the date the law goes into effect, i. e., Nov. 4, 1915, every possible effort should be made by members of the association and officers on the ships to carry out the provisions of the law as they apply to the Lakes. Some of the regulations have not been formulated, no certificated lifeboat men have been provided for as yet by regulation, and as it is all a matter under the jurisdiction of the department of commerce the proper and really the only course is to instruct each master to use every endeavor to carry out all the provisions of the law. If he has any uncertainty or difficulty through the absence of regulation or otherwise, or there comes up actual inability to comply in any respect, he should report

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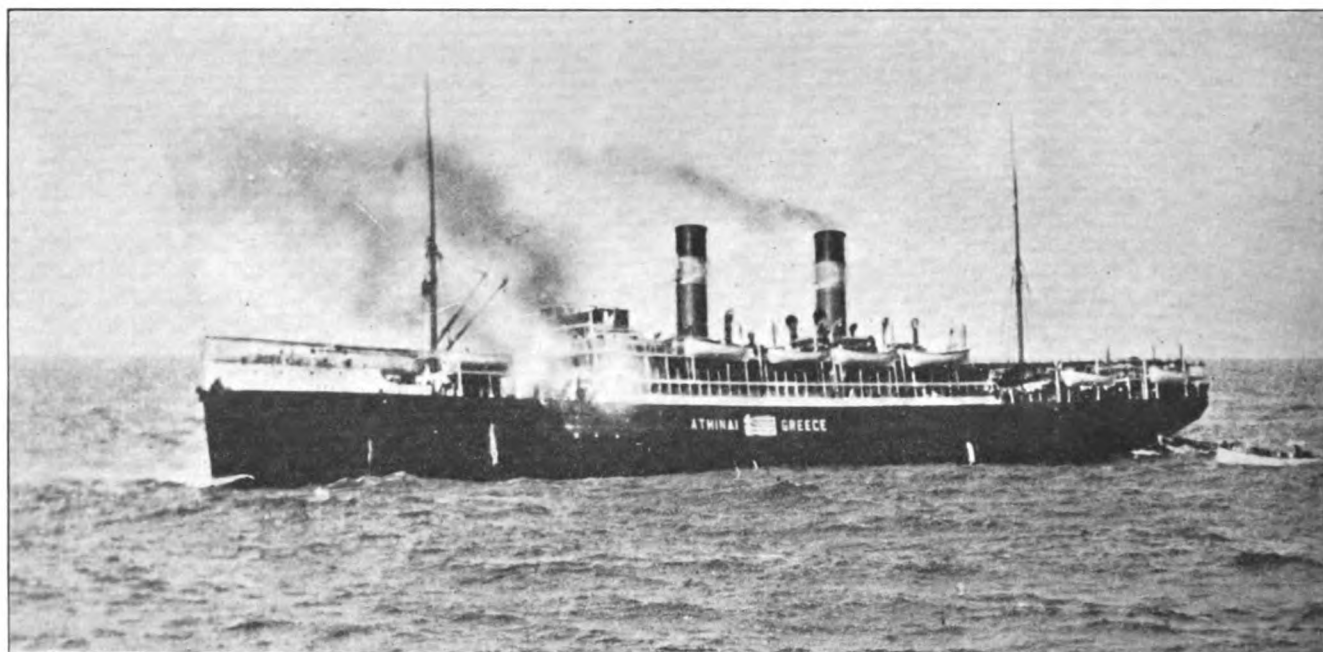
Photographs From Far and Near

Contributions For These Pages Are Solicited



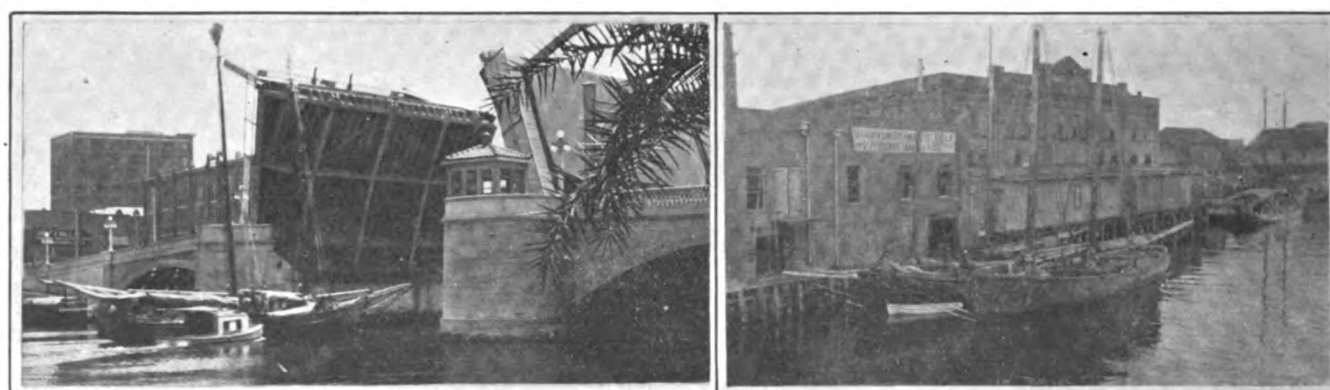
NEW GRAND TRUNK PACIFIC CAR FERRY ONTARIO NO. 2

Said to be the last word in speed and comfort, this large auxiliary, recently completed, is an important link in the Great Lakes service offered by the transcontinental line. The two larger views show ONTARIO No. 2 shortly after going into commission; the smaller is a reproduction of her bronze name plate



THE GREEK STEAMSHIP ATHINAI AFIRE IN MIDOCEAN

This interesting photograph, taken from the liner TUSCANIA, gives the beholder a vivid sense of the horror of fire on board ship on the high seas. The dim smudge of vapor forward of 'midships is no real indication of the inferno which may be gaining headway below decks

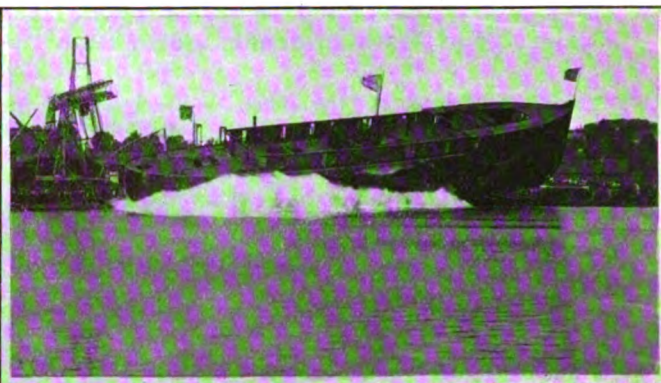


THE BEGINNINGS OF A GREAT PAN-AMERICAN COMMERCE

Shortage of steam vessels has increased the opportunities open to the sturdy little schooners which make a comfortable living for their operators in the trade between Florida and Central American ports. Those shown in the accompanying illustrations are engaged in the fruit trade between Tampa and Honduras

Latest Marine News in Pictures

Payment Will Be Made For Acceptable Photographs



LAUNCHING OF LARGE PACKAGE FREIGHTER AT MANITOWOC, WIS.

Built for the Goodrich Transit Co. by the Manitowoc Ship Building & Dry Dock Co., NEVADA is intended especially for winter service on Lake Michigan. She is staunchly built of steel with extra stiffeners, a double bottom, and watertight compartments. The two illustrations show NEVADA immediately before and after her launching



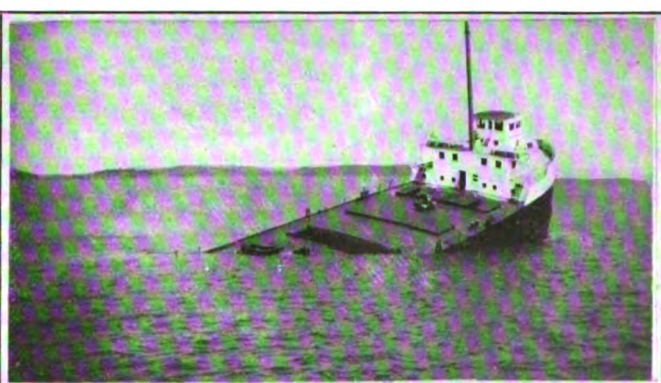
LAST TO CARRY THE AMERICAN ENSIGN INTO ORIENTAL TRADE

With the withdrawal of the Pacific Mail Steamship Co. from competition with Japanese and other foreign transpacific lines, owing to the stipulations of the new seamen's law, MINNESOTA, the survivor of the gigantic Great Northern Steamship Co. twins with which James J. Hill once hoped to build up commerce between the orient and north Pacific ports, is left alone. She has been offered for sale.



THE SUCCESSORS OF OUR ONCE PROMISING TRANSPACIFIC COMMERCE

In the foreground is seen TACOMA MARU, a fine vessel of the Osaka Shosen Kaisha fleet, loading at Tacoma harbor. Beyond her is seen a British vessel. Japanese ship yards are all being rushed to capacity building large steamers.



TECHNICALLY KNOWN AS "A CONSTRUCTIVE TOTAL LOSS"

WESTERN STAR, owned by the Cadillac Steamship Co., Cleveland, recently struck on Robertson rock, north of Clapperton island, Georgian bay, and went down, her stern lying in 90 feet of water and her bow resting in 14 feet. She was laden with coal.

Power Boats for National Defense

The United States Should Provide a High Speed Patrol Fleet Equipped With Internal Combustion Engines—Proposed Plan for Defense

WORLD events of the past year have done more to awaken the United States to its true position among nations than all the writing and speech-making of a decade. But like any rudely awakened person, we are likely to make a lot of false moves until we are really awake. Just now we are groping and guessing when there is need of quiet thought and real work. Nearly everyone realizes that something must be done and ideas range from those of the militarist to the peace-at-any-price passive resistance of William Jennings Bryan and Henry Ford.

Someone has said that this country should be like the porcupine—so well armed as to be able to lead a peaceful existence. The simile seems to hit the nail on the head as a simile, but it goes no further and leaves the actual work to be done. Two organizations, the Navy League and the Army League, have tried for some years back to create interest in our two arms of defense and they have done good work. Lately other leagues have sprung up, and finally a clearing house of all these leagues has been established—the Conference Committee on National Preparedness. This committee is composed of representatives of all the leagues of defense and delegates from technical associations whose members might render valuable assistance in an emergency.

Recently, too, the secretary of the navy has created a civilian advisory board, made up of men prominent in invention and from industries which are all likely to be called upon for defense. In neither of these bodies is the internal combustion marine engine industry represented, although it has a strong, active association, the National Association of Engine and Boat Manufacturers. Whether this is accident or intent remains to be seen. In any event, it was a mistake which we hope to see speedily rectified. There is no time to lose.

What Foreign Nations are Doing

Foreign nations are more fully alive to the nature and possibilities of the internal combustion engine than our own government. This form of engine, of the diesel and other types, has played and is playing a most important part in the great war, and the nations best equipped in this respect have been most successful. An

indirect indication of its importance is the placing for the first time of rubber (for tires) in the contraband list, thus putting a ban on the automobile truck. In the air the motor is the eye of the army and navy, on land it is the scout and burden-bearer and on the water it furnishes power to the dreaded submarine as well as to its enemy, the gasoline or diesel scout.

Before the war opened, France and

government toward the internal combustion engine has ranged from open hostility to tolerance, but has never been sympathetic. At times this attitude has been ridiculous. The net result is that we are almost helplessly distanced. In aeroplanes our government is marking time. It is demanding of aero manufacturers the fulfillment of conditions that require experiment while their shops are humming with orders for machines acceptable to foreign countries and whose practicability is proved by actual service.

Practical Defense

National preparedness has become a slogan. Originally it was "America first", and America is easily first at the present time among the world powers in commerce, wealth, prosperity, everything but—defense. Yes, we are weak, physically weak. We have everything the world covets and no way of keeping it. If the European war should terminate tomorrow and any one of the warring nations with whom we hold the balance of trade should say, "Give us back our money," would we do it? We would, unless we desired to see our coast cities destroyed and communication with the outside world cut off.

It was Charles Pickney who put the indelible stamp of this country's independence upon the world's history in his memorable reply to the Barbary pirates, "millions for defense, but not one cent for tribute." That is more true now than a hundred years ago. Our defense is our salvation. The power boat is a big factor—probably the biggest factor excepting the submarine. It is the most efficient enemy of the submarine and the only mobile check against its depredations. That is why we must all give this subject serious thought.

Germany each raised handsome sums by popular subscription to equip their armies with aeroplanes, and at the opening of hostilities both these nations entered the war with good, but, as it proved, inadequate supplies of this important accessory to its arms. England and Russia, on the other hand, were and still are severely handicapped by lack of these machines. It has been said, with a good deal of truth, that Germany's success against Russia hinges on this very matter. The Aero Club of America has started a popular subscription in this country to provide us with aeroplanes.

The attitude of the United States

Navy Department Offers Only Discouragement

In the marine field the actual conditions are even worse. The navy department does not know what it wants, or else demands the impossible. It has never been content to take what was available or to work with engine manufacturers to perfect the internal combustion marine engine as have some foreign governments. To cite a few instances. Some years ago one of the departments asked marine engine manufacturers to send, at their own expense, one of their machines (which they thought would fill a given set of conditions) for trial at one of the navy yards. Manufacturers naturally thought that the engine which made the best showing would receive adequate recognition by the department. Most of the prominent makers sent their motors and at considerable expense entered this competition. Officers put these engines through a course of stunts which in some cases led to the destruction of the machinery. The tests proved little or nothing, for they were not service tests. For instance, the engines were run on a proper needle valve setting of the carburetor and then it was gradually opened till the motor refused to function. Motors were run for an hour or more in reverse, etc., etc. The net result for the department was the knowledge that no gasoline engine would stand indefinite abuse, and for the manufacturers the dream of big orders was never realized.

Again, our submarines are notoriously inefficient. Most of them are equipped with a motor of foreign design which is not used to any extent in the submarines of the country from which the design emanated. Our



The greatest enemy of the submarine is the high speed gasoline scout which harasses the underwater craft and checks its depredations against commercial vessels

latest submarines are to be equipped with an engine also of foreign design. Its designers are located in a country without a mile of sea coast. These makers have a well-deserved reputation in the stationary field, but their only large commercial marine engine in service is out of service half the time. We believe American naval vessels should be equipped with American engines.

Again, one of our prominent manufacturers, who has supplied the government with many marine engines, was compelled, in self-defense, to equip each of the engines supplied to the government with a governor to keep its operators from wrecking it. Another prominent manufacturer has no machine in the government service because he will not permit the government to tinker with what he knows is right and will systematically perform its work.

Examples such as these might be extended indefinitely, but why harp on one string? Such conditions might be expected where we consider that the navy is raised and trained solely on steam and taught that it is supreme. The internal combustion engine has had little chance, but it must either be recognized or our government will go backward and its talk of preparedness amount to nothing.

Some years ago congress passed a personnel bill. In effect this did away with the staff officers. Under it every officer is trained in all branches of the service. Each is an engineer, an ordinance officer, an electrician, a

navigator and a general paragon. As was to be expected the actual operation and care of the complicated machinery of a ship fell to the warrant officers and troubles commenced. Today, though the law is still in operation, practically it is a dead letter. Officers assigned to engineering duty remain in that capacity and corps. But very few know the full possibilities of the internal combustion motor. What is needed are officers and men trained in this branch of engineering as they are trained in others in the service. It is not the fault of the officers or men of the service. The fault lies higher up, in the heads of departments, and even beyond them. It is a fault in attitude and perspective which must be altered before our government can be on a par with others.

Today foreign governments have mobilized our marine engine industry and are making use of it and its engineers to a degree which our government has never dreamed possible. But, why give our best to the foreigner and take what is left ourselves when we have so many miles of exposed coast line in whose defense the marine engine must play its part?

Power Boat Experts Will Help Government

There are thousands of power boat operators and owners along the coasts and on the Great Lakes and rivers who would jump at the chance to help their country perfect a national defense. These men know and ap-

preciate internal combustion engines. They have a genuine love for the put-put, little or big. Its purr is music to their ears. Most of them, to be sure, have never had the money to own a big, powerful machine, but they are well grounded in the principle of its operation and a few weeks' or months' training would make them familiar with larger units. They are accustomed to live on the water in small boats with their cramped quarters and quick motion (which, by the way, would make many a man-o-war's-man or liner seaman long for his ship). They know the local waters like a book—tides, eddies, shoals and channels are all as familiar as their own homes. This local lore can't be dug out of charts and coast pilots. Superimpose on this ground work some real training in navy tactics, knowledge of guns, torpedoes, mines, wireless, signaling and all that goes to make up the training of a navy man and we would have an expert citizenship to draw upon which would be invaluable in case of necessity. These same men in a battleship would be like cats in a strange garret. The present navy cannot be made to attract the best class of boatmen.

Again, with all this training and without boats suitable for war purposes they would be like an army equipped with pitchforks and scythes. This seems to be the apparent weakness of the power squadrons—they haven't the boats to use. In our whole power boat fleet there are

hardly a handful of boats which by the widest stretch of imagination could be metamorphosed into war vessels. The modern submarine, for which it would be one of the duties of the power naval reserve to hunt, has a surface speed of 18 knots or 20¼ miles. Some say that the latest submarines can travel 23 knots, or 26½ miles, on the surface. The hunter must have a speed superior to the hunted and other qualities as well. The scout must be agile and seaworthy. It must be able to take and keep the sea. How many of our pleasure fleet can measure up to these requirements? Very few. This all means that the vehicle through which the power naval reserve must operate must be created *de novo*.

If we wait for the government to untangle its red tape and create such a unit, it will never be done.

There are several ways of building up such a reserve of power boats. By popular subscription, as was done by France and Germany in their aero services or by the effort and co-operation of individual owners. The latter plan seems the most obvious and most feasible, especially as boats suitable for a power boat reserve can be so designed and built as to be useful to their owners as well as to the government. What is required is the high-speed express cruiser type simplified and modified so that it can be quickly changed into a serviceable scout. With such vessels in abundance subject to a call to service by the government we would have another very strong link in the chain of defense, forged and ready for use. Just how this desired condition may be brought about is open for discussion, but we venture to propose co-operation between the owners and the government in finding the solution.

Naval Reserve Law Can Be Utilized

There is already among the federal statutes a naval reserve law. With some modifications it could be made to cover the matter under discussion. All that is needed is some workable agreement between individual owners and the government by which the government could take over the individual units at a predetermined price in case of necessity and charter same for fixed periods for practice maneuvers at a fixed rental. Such an agreement must by necessity be fair and equitable to both parties and must be entered upon in a spirit of co-operation. It must protect the owner against confiscation, must give him some privileges commensurate with his patriotism and personal sacrifice, and must protect the government

against falsely inflated values and fancy prices from which it has suffered in the past.

With such a reserve of men and boats our government would be in a strong position in one branch of defense. We disclaim any special knowledge of the technical end of this proposal. That is for the naval architects and engineers to work out. What we are striving for is to see our country placed in a better position for defense and any means which will produce that result without graft will have our enthusiastic support and we feel sure the support and endorsement of every one of our readers.

Instructions Issued

(Concluded from page 399.)

directly to the first board of local inspectors that he can reach in the course of his trip and obtain their advice and assistance. In case of any inability to comply, he should report fully by letter to the local inspectors as provided under Section 4463. The changing of the law during the operating season will naturally result in more or less confusion, and the committee of owners appointed by your board of directors to formulate detailed instructions to be sent out to each master finds itself unable to do so because of different conditions existing on the various types of ship, and find the best they could do was to make the above recommendation, and briefly quote that portion of the law applicable to the Lakes with such rulings as we have been able to get from the department of commerce and labor. Each owner should send to his captains a copy of this circular with instructions to carry out its recommendations.

"For convenience there are appended the resolutions adopted at the meeting of the directors, a copy of the letter of Secretary Redfield and of the ruling of Supervising Inspector General Uhler referred to, with sections of the law which it is thought may in any manner refer to bulk freighters of the Great Lakes."

All these instructions have been transmitted in convenient form to every master of a Lake Carriers' vessel with this closing injunction:

"The proper and only course is for each master to use every endeavor to carry out all the provisions of the law, both in letter and spirit in accordance with the letter of Secretary Redfield."

Latest Marine Patents

Copies of any one of these patents can be obtained by sending 15 cents in stamps to Siggers & Siggers, patent lawyers, Washington, D. C., by mentioning THE MARINE REVIEW.

No.	Title and Inventor.
1,153,881	Compound internal combustion engine.—Charles M. Allen, San Francisco.
1,154,105	Marine governor.—Noel Dupuis, Aberdeen, Wash.
1,154,126	Submarine vessel.—Joseph T. Parker, Washington, D. C.
1,154,153	Marine furnace equipment.—Alfred B. Willoughby, Philadelphia.
1,154,195	Floating device for vessels.—Angelo Miceli, Boston, assignor to Angelo Miceli Unsinkable Vessel Co., Boston.
1,154,215	Hull construction of submarine boats.—Lawrence Y. Spear, Quincy, Mass., assignor to Electric Boat Co., New York.
1,154,272	Marine mine.—Emil Senger and Raimund Sauter, London, England.
1,154,329	Internal combustion engine.—Robert H. McCarthy, Madalia, Minn.

Ore Shipments

Ore shipments during September were 7,863,146 tons, bringing the total movement to Oct. 1 up to 34,669,566 tons. While the September movement was not quite as large as was expected, it is nevertheless the largest September movement in the history of the trade, exceeding the movement of September, 1912, by 575,916 tons, when 7,287,230 tons were moved. The movement during September, 1914, was 5,431,307 tons, a decrease of 2,431,839 from the corresponding period this year, and the movement to Oct. 1, 1914, was 26,709,413 tons as compared with 34,669,566 tons moved to Oct. 1, 1915.

The shipments by ports are as follows:

Port.	Sept., 1914.	Sept., 1915.
Escanaba	553,959	1,015,820
Marquette	335,928	539,879
Ashland	662,141	1,028,363
Superior	1,901,422	1,557,935
Duluth	1,126,532	2,428,689
Two Harbors	851,325	1,292,460
1915 increase	5,431,307	7,863,146
		2,431,839
Port.	To Oct. 1, 1914.	To Oct. 1, 1915.
Escanaba	3,019,651	4,011,682
Marquette	1,385,718	2,313,532
Ashland	2,741,917	3,829,582
Superior	9,478,253	9,997,023
Duluth	5,278,899	11,807,219
Two Harbors	4,804,975	6,710,528
1915 increase	26,709,413	34,669,566
		7,960,153

Ore Receipts

Out of a total movement of 7,863,146 tons of iron ore during September, 6,650,976 tons were received at Lake Erie ports, distributed as follows:

Port.	Gross tons.
Buffalo	1,012,169
Port Colborne, Ont.	51,519
Erie	149,917
Conneaut	1,257,147
Ashabula	1,478,179
Fairport	312,354
Cleveland	1,279,449
Lorain	617,467
Huron	128,135
Toledo	273,413
Detroit	91,227
Total	6,650,976

Shipping facilities to Australia and New Zealand are much better than for the past year, and are expected to show further improvement. The Union Steamship Co. in addition to regular sailings of passenger and freight steamers every four weeks from each port, recently loaded a steamer with general merchandise at Vancouver and San Francisco for Auckland, Melbourne and Sydney. WAIMARINO is to load at Vancouver about the third week in October and at San Francisco at the end of October for Auckland and Sydney. WAIHEMO will load at Vancouver and San Francisco early in October for Wellington and Sydney. An opportunity is offered exporters to push for business in that field where demand is great and there is a shortage along most lines.

What the Government is Doing

Rulings on Marine Matters

Improvements to Waterways

Hints to Navigators

Will Examine A. B. Candidates

COLLECTORS of customs, supervising and local inspectors, the steamboat inspection service, and others have been informed by the secretary of commerce that by virtue of the authority conferred by section 13 of the act approved March 4, 1915, which provides "That upon examination, under rules prescribed by the department of commerce as to eyesight, hearing, physical condition, and knowledge of the duties of seamanship, a person found competent may be rated as able seaman after having served on deck 12 months at sea, or on the Great Lakes," the following regulations are prescribed for determining the knowledge of the duties of seamanship of such persons who make application for examination for a certificate of service as able seaman:

Any person who has had 12 months' service on deck at sea or on the Great Lakes on any vessel of 100 tons gross and upward (except those navigating rivers exclusively and the smaller inland lakes, and except fishing or whaling vessels or yachts), including decked fishing vessels, naval vessels, and coast guard vessels, may make application to any board of local inspectors for a certificate of service as able seaman, and upon proof being made to this board by affidavit as to service, and examination as to physical condition and knowledge of the duties of seamanship, showing the nationality and age of the applicant and the vessel or vessels on which he has had service, the board of local inspectors shall issue to the applicant a certificate of service which shall be retained by him and be accepted as prima facie evidence of his rating as able seaman.

Requirements of Candidates

No person shall be examined who does not produce satisfactory affidavit or affidavits that he has served at sea or on the Great Lakes, as prescribed in paragraph 1.

Each applicant shall pass the prescribed physical examination before a medical officer of the public health service before being permitted to take

the examination to determine his knowledge of the duties of an able seaman. The professional examination to determine the applicant's knowledge of the duties of seamanship shall be oral, and shall be conducted in the form of questions and answers and by practical tests. The applicant shall be examined in each of the prescribed subjects and given a mark in each based on a scale of 100.

No person shall be recommended for or shall receive the certificate of service as able seaman who fails to attain a general average of merit of less than 70 per cent.

The professional examination may be conducted by an officer of the United States navy, the coast guard, lighthouse service, coast and geodetic survey, navigation service, or any other marine officer designated by the secretary of commerce. When any such officer conducts the examination the board of local inspectors shall issue to the applicant a certificate of service as able seaman upon receiving notice in writing from such an officer that the applicant has passed the prescribed examination as to knowledge of the duties of seamanship.

Masters of vessels, and others have been advised that section 16 of the act of Dec. 21, 1898, which was amended in part by section 4581, revised statutes, relating to the discharge of seamen by consuls, to read:

"If the seaman is discharged on account of injury or illness, incapacitating him for service, the expenses of his maintenance and return to the United States shall be paid from the fund for the maintenance and transportation of destitute American seamen," has been further amended by section 19 of the seamen's act of March 4, 1915, which adds to these words the following:

"Provided, That at the discretion of the secretary of commerce, and under such regulations as he may prescribe, if any seaman incapacitated from service by injury or illness is on board a vessel so situated that a prompt discharge requiring the personal appearance of the master of the vessel before an American consul or consular agent is impracticable, such

seaman may be sent to a consul or consular agent, who shall care for him and defray the cost of his maintenance and transportation, as provided in this paragraph."

The personal appearance of the master of the vessel before an American consul or consular agent to consent to the discharge of a seaman who has been incapacitated by injury or illness may be waived by the consul under the following conditions:

(a) When the condition of the injured or ill seaman is such that prompt medical attendance is necessary and can not be furnished on shipboard, and:

(b) When the master can not proceed with the seaman to the consul without risk to the crew, the vessel, or the cargo.

In such cases the master will address to the consul in writing a full statement of the facts which render necessary the discharge of the seaman, together with a statement of the reasons why he himself is unable to appear before the consul. The statement should cover the usual particulars set forth in a discharge and should be accompanied with an account of the wages due and with the necessary funds to meet such wages, or (if the cash be not available) with an order on the owner for the amount due.

If the consul shall deem the statement satisfactory, he may discharge the seaman as directed in section 4581, revised statutes, as amended by section 16 of the act of Dec. 21, 1898, and section 19 of the act of March 4, 1915, as if the master were present, attaching to the discharge and to his relief account a copy of the statement submitted by the master.

If the consul shall deem the statement unsatisfactory, he will decline to grant the discharge and direct that the seaman be returned to the vessel at its expense.

Philology on the High Seas

Collectors of customs and others concerned have been informed that section 13 of the seamen's act of March 4, 1915, in part, providing as follows:

"No vessel of 100 tons gross and upward, except those navigating rivers exclusively and the smaller inland lakes and except as pro-

vided in section one of this act, shall be permitted to depart from any port of the United States unless she has on board a crew not less than 75 per cent of which, in each department thereof, are able to understand any order given by the officers of such vessel.

"The collector of customs may, upon his own motion, and shall, upon the sworn information of any reputable citizen of the United States setting forth that this section is not being complied with, cause a muster of the crew of any vessel to be made to determine the fact; and no clearance shall be given to any vessel failing to comply with the provisions of this section."

The law will take effect as to vessels of the United States on Nov. 4, 1915, and as to all foreign vessels on March 4, 1916.

The department of commerce construes the words "able to understand any order given by the officers of such vessel" to mean the necessary orders that may be given to members of the crew in each department in the course of the performance of their duties.

The department does not construe the above section as requiring the use of

in the course of the usual performance of their regular duties. Among these duties, however, should be included lifeboat work or emergency work for such members of the crew as may be called upon to perform these classes of work. The department would not consider it a proper construction of the section to require, for example, that a waiter should understand orders normal to the engine room force or that a stoker should be required to understand orders which related solely to the work of a deckhand or seaman. In the cases, however, of a waiter, a stoker, a seaman, or other employe on the vessel who was assigned to do emergency or lifeboat work it would be a proper construction of the section to require him to understand orders for such emergency or lifeboat service.

The department construes the section to mean that a demonstration in the

September Lake Levels

The United States Lake Survey reports the stages of the Great Lakes for the month of September, 1915, as follows:

Lakes	Feet above mean sea level
Superior	602.49
Michigan-Huron	579.96
Erie	572.20
Ontario	245.45

Lake Superior is 0.08 foot higher than last month, 0.32 foot lower than a year ago, 0.21 foot below the average stage of September of the last ten years, 1.59 feet below the high stage of September, 1869, and 1.00 foot above the low stage of September, 1875. During the last ten years the September level has averaged 0.1 foot higher than the August level and about the same as the October level.

Lakes Michigan-Huron are 0.15 foot lower than last month, 0.51 foot lower

Large Slides Block Panama Canal

ONE of the most serious slides occurring since the Panama canal was opened has cut off all prospect of resuming traffic through the waterway until Nov. 1. The channel was blocked by a slide from the east bank, north of Gold Hill, on Sept. 20 and the movement continued steadily until early in October, pouring earth and rock into the waterway, in the removal of which several dredges were kept at work in a vain effort to clear the way for traffic. Owing to the blockade a dozen or more vessels which were held up at Balboa and Cristobal have received orders to proceed to their destinations around Cape Horn. The Panama steamship lines, in an effort to carry out valuable freight contracts which they hold, will endeavor to continue their services by transshipping across the isthmus by rail and thence by steamers held at the entrances to the waterway. By this means it is expected that the utmost delay to cargoes will not exceed ten days. The cost to the steamship companies,

however, will be an item that was not anticipated. The Luckenbach Steamship Co. was the first to announce this plan of operation. The plan of exchanging cargoes by the rail line across the isthmus will avoid the only other alternative, that of sending the steamers around the straits of Magellan route. The passenger steamers FINLAND and KRONLAND of the Panama Pacific Line will be operated temporarily on the Atlantic and Pacific, transferring passengers across the isthmus by rail. The interruption of traffic by the slides in the canal has been made still worse by the poor transportation conditions which now exist at Galveston, the rail terminus of the Southern Pacific rail-and-water route between the east and the Pacific coast. At the present time, owing to the heavy storms which swept across southern Texas in September, destroying a part of Galveston, serious delay is encountered in transferring shipments and considerable time is lost.

any particular language on the part of officers and crews of any vessel. Any language which is understood in sufficient measure by both the officers and the proper proportion of the crew will comply with the law. It must clearly be understood, therefore, that the section cannot be construed as requiring an English-speaking crew. For example, on a French vessel the French language if spoken by the officers and if understood by the proper proportion of the crew would suffice. The same would be true of Spanish on a Spanish vessel, of German on a German vessel. Therefore, no specific language is required but only that whatever language is used it shall be understood as the law requires.

The department also construes the section as meaning only such orders as may normally be given to members of the crew in each department of the vessel

presence of the customs collector or his deputy by the proper proportion of the crew in executing the actual orders of an officer would be a sufficient proof of compliance with the law. It will be noted that the orders are to be given "by the officers" and not by the customs collector or any one acting in his behalf.

The department further construes the section to mean that the muster of the crew for which the law provides shall take place at such reasonable times and occasions as will determine the facts sufficiently in advance of the time fixed for the sailing of the vessel to permit the engaging of such new members of the crew as may be necessary in time for the vessel to sail without delay. The department understands the law to require the safeguarding of the vessel through the language test in the best interests of American commerce.

merce.

than a year ago, 0.85 foot below the average stage of September of the last ten years, 3.47 feet below the high stage of September, 1876, and 0.30 foot above the low stage of September, 1911. During the last ten years the September level has averaged 0.2 foot lower than the August level and 0.2 foot higher than the October level.

Erie Lower Than Last Year

Lake Erie is 0.12 foot lower than last month, 0.12 foot lower than a year ago, 0.19 foot below the average stage of September of the last ten years, 1.74 feet below the high stage of September, 1876, and 0.92 foot above the low stage of September, 1895. During the last ten years the September level has averaged 0.3 foot lower than the August level and 0.3 foot higher than the October level. Lake Ontario is 0.02 foot higher than it was last month.

ago, 0.78 feet below the average stage of September of the last ten years, 2.16 feet below the high stage of September, 1862, and 1.45 foot above the low stage of September, 1895. During the last ten years the September level has averaged 0.4 foot lower than the August level and 0.4 foot higher than the October level.

Discuss Insurance

The New York State Insurance Fund offers a more attractive and economical form of compensation insurance than either the stock or mutual insurance companies, according to statements by J. Spencer Baldwin, superintendent of the state insurance fund, at a meeting of the members of the New York Boat Owners' Association and the Maritime Association of the Port of New York, held at the Maritime Exchange August 17.

The owners of miscellaneous types of craft operating in and around New York harbor, having a total gross tonnage of 2,000,000 tons, called upon Mr. Baldwin to explain the merits of the state insurance fund, in an effort to solve problems of high costs of compensation insurance which have been afflicting them under the recently enacted law. The majority of the boat owners at the present time pay high rates of insurance on their crews to the stock insurance companies.

Joseph H. Moran, president of the Boat Owners' Association, presided. Mr. Moran pointed out that under the old law in New York the members of the association paid an average rate of 80 cents per \$100 of payroll for the insurance of their crews, and this has been increased to \$4.86 under the provisions of the new law, an increase of over 400 per cent. Mr. Baldwin in his address declared there were many advantages in the form of lower rates which the boat owners could have by insuring under the state fund plan. Reviewing the record of the state fund for its first year ending July, 1915, Mr. Baldwin said that it began business with 5,000 policy holders and now has 8,500.

The state fund costs in the first six months for insurance of its policy holders effected a saving of 10 per cent lower than the stock company rates, and in the last six months its saving amounted to 20 per cent below the costs of other forms of insurance," said Mr. Baldwin. He then denied that the state fund has had only bad risks included under its plan of insurance as critics had predicted it would, and pointed out that the expenses of the fund, amounting to \$207,000 for the first year were paid by the state.

"At the present time," he continued, "we are operating on an expense ratio

of 12 per cent, and I am confident of lowering this to 10 per cent in the near future.

The state fund rates are now 20 per cent below the stock company's rates, and our experience shows that these rates are adequate to provide insurance costs, to furnish ample reserve or surplus funds required by law, and to yield a margin of substantial dividends for policyholders. In the first six months of our experience, we declared a dividend of 20 per cent, and in the second six months our dividend will be about 15 per cent. The net cost of insurance in the state fund was about 7 per cent lower for the second six months, as compared with the first half of the year, ending July, 1915."

Harrison M. Veeder, representing the First Mutual Liability Insurance Co. of New York, delivered a brief address outlining the system of compensation insurance under the mutual plan. Mr. Veeder admitted that the New York State Insurance Fund in its first year of experience has proven to be much superior to those organized in some of

the western states, which had disastrous experiences. One of the features of mutual insurance which Mr. Veeder mentioned, was the fact that it covers four classes of claims against employers: first, compensation insurance; second, common law liability; third, defense of suits, and fourth, public liability.

Tool Chests

A new type of tool chest for use at light stations, containing all tools that are required by keepers in ordinary repair work at stations, has been designed and equipped in the third United States lighthouse district. The cost of this chest, complete with tools, will be about \$30.

The government bureau of lighthouses states that it is also proposed by the third inspector to design a similar chest, to be fitted with pipe and machine tools, for use at oil-engine stations, and to be furnished to such stations in addition to the carpenter chest.

Private Yard Gets Job

THE United States coast and geodetic survey, department of commerce, has awarded the contract for the construction of the survey vessel *SURVEYOR* to the Manitowoc Ship Building & Dry Dock Co., Manitowoc, Wis., on its bid of \$189,000. The Manitowoc company was lower than any of the other private ship building concerns bidding on this job and is well equipped to construct *SURVEYOR* in accordance with the rigid specifications of the government.

Twelve proposals in all were submitted for the construction of *SURVEYOR*, including five from United States navy yards which had been invited to submit bids by the secretary of commerce. The low bid was put in by the navy yard at Portsmouth, N. H., the minimum figure being \$163,250, with an alternate proposal of \$173,250.

The unfairness of permitting government navy yards to compete with private builders on work of this character was pointed out in an article on page 366 of the October issue of *The Marine Review*, and it is gratifying to note that the officials of the department of commerce awoke to a realization of the faulty position which they were in before the contract finally was let. In fact, it is evident that the representatives of the coast and geodetic survey had some misgivings regarding the naval bids, inasmuch as a letter announcing the let-

ting of the contract contained the following interesting paragraphs:

"After consultation with the navy department at Washington, in reference to the 'estimate' of the Portsmouth navy yard, the contract for the construction of *SURVEYOR* was awarded to the Manitowoc Ship Building & Dry Dock Co."

According to the terms of the contract, *SURVEYOR* must be completed within one year, but Vice President West, of the Manitowoc company, who went to Washington to consult with E. Lester Jones, superintendent of the United States coast and geodetic survey, about the construction of the vessel, says she will be finished in much less time, possibly as early as the first of next August.

This will leave ample time to take the vessel to the Atlantic coast before the close of navigation in the Great Lakes.

A remarkable feature of the award of this contract lies in the fact that a ship building company located on Lake Michigan should build an ocean going vessel destined for service in Alaska. This brings home the important commercial fact that after all the Great Lakes, extending far into the interior of the American continent, are for all practical purposes a part of the Atlantic ocean. It also speaks well for the enterprise of the ship building company which is to build the vessel.

Bureau Makes Important Rulings

Amorphous Red Phosphorus Can Be Carried on Passenger Steamers—Special Decision Regarding Dolomite

THE federal steamboat inspection bureau has informed the Standard Oil Co. of New Jersey, New York, that "Nujol", an article manufactured by it, does not come within the prohibitions of section 4472 R. S. The bureau has also informed the Chemical Products Co., Boston, that Bush's "Monibak Brilliant" and Bush's "Monibak Metal Polish" may be transported on steamers carrying passengers and may be used as stores on passenger or pleasure steamers. The bureau informed Bliss, Dallett & Co., New York, that the ruling of Aug. 17, 1915, published in Commerce Reports No. 211, to the effect that unhydrated or quicklime shall not under any conditions be transported on steamers carrying passengers, supersedes the bureau's ruling of Nov. 2, 1914, in which it was stated that quicklime may be transported on steamers carrying passengers, provided that due care is taken to protect it from moisture.

Phosphorus Ruling

The Hamburg-American line, New York, was recently advised by the bureau that the ruling of Aug. 24, 1915, in reference to amorphous or red phosphorus, published in a circular letter of Sept. 1, 1915, supersedes the ruling of Sept. 3, 1913, published in the bureau circular of Oct. 1, 1913, with reference to amorphous or red phosphorus. In addition the bureau rules that there is no objection to the transportation of amorphous or red phosphorus in tins in cases carried on deck.

The bureau informed the Cudahy Packing Co., Legal Department, Chicago, Ill., that Parrot metal polish, manufactured by them, may be transported on steamers carrying passengers under the same conditions as refined petroleum, but it shall not be used as stores on passenger or pleasure steamers.

During September, 1915, the following companies submitted affidavits required by section 29, rule 11, general rules and regulations, relative to valves and fittings: Olympic Steel Works, Seattle; Gyro Metal Works, Norfolk, Va.

The Toledo Ship Building Co. has furnished the affidavit required relative to the manufacture of fusible plugs. The bureau also has informed the Hea-

ney Mfg. Co., Boston, that "Heaney's metal polish" shall not be transported on steamers carrying passengers, nor shall it be used as stores on passenger or pleasure steamers. The solicitor of the department of commerce has handed down an opinion, in which he holds that the transportation of Tanner's oil on steamers carrying passengers is not prohibited by section 4472 R. S.

The bureau has decided that that kind of dolomite consisting of magnesia and hydrated or slaked lime may be transported on steamers carrying passengers, but that such dolomite as is composed of magnesia and unslaked lime shall not be transported on steamers carrying passengers, and that unhydrated or quick lime shall not under any conditions be transported on steamers carrying passengers. The bureau has informed the Economy Lubricating Co., Charlestown, Mass., that their "non-inflammable, non-combustible, non-explosive metal polish" may be transported on steamers carrying passengers and may be used as stores on passenger and pleasure steamers.

In reference to rulings heretofore made with regard to the transportation of carbolic acid on steamers carrying passengers, and with particular reference to that part of such rulings that has referred to carrying this commodity on the decks of steamers carrying passengers, the solicitor of the department of commerce has expressed the opinion that under the provisions of section 4472, R. S., the inspectors would have the authority to prescribe any other part of a vessel for the carrying of such acids, other than on the decks or guards thereof, provided, in their judgment, such other place would be safe, and, therefore, in the matter of the transportation of carbolic acid, local inspectors have original jurisdiction to say where such acid shall be stored.

May Carry Films

The bureau advised Gillespie Bros. & Co., New York, that sesquisulphide of phosphorus and amorphous or red phosphorus may be transported on steamers carrying passengers, provided that these commodities are stowed in iron drums and carried on deck; also that white or yellow phosphorus shall not be transported on steamers that are carrying passengers for hire.

Moving picture films may be transported on steamers carrying passengers under the same conditions as celluloid. Detailed information, in regard to the transportation of celluloid, may be obtained from the local inspectors having original jurisdiction, those officers being fully informed.

The bureau has informed the International Metal Polish Co., Inc., Indianapolis, that "Blue Ribbon Metal Polish", which is said by them to have a flash point below 80 degrees Fahr., shall not be transported on steamers carrying passengers, nor used as stores on passenger or pleasure steamers. Whitney, Lynch & Quinlan, Ltd., Boston, were advised by the bureau that "W. L. & Q. brass polish" may be transported on steamers carrying passengers under the same conditions as refined petroleum, but that this polish shall not be used as stores on passenger or pleasure steamers.

During August, 1915, the following companies submitted affidavits in regard to the manufacture of valves and fittings, as required by the general rules and regulations: The Bashlin Co., Warren, Pa.; the Ross-Meehan Foundry Co., Chattanooga, Tenn.

New Lighthouse Station

A new lighthouse station will be erected by the department of commerce at the highest point on the southern side of Navassa island, West Indies. It will be about 250 feet above sea level. The tower will be cylindrical, of reinforced concrete, supporting a cylindrical helical bar lantern with a focal plane 402 feet above sea level. The tower will be located about 50 feet northwest of the keeper's dwelling, which will be of reinforced concrete, one story high, square in plan, and containing quarters for three keepers and their families. The illuminating apparatus of the station will consist of two four-sided "fourth order" lenses, side by side and parallel, and carried on a mercury float. The lenses will be provided with mantle lamps, the two parallel beams of light from the lenses combining to form a single beam of about 56,000 candlepower. The light is designed to send forth a double white flash every 30 seconds. The range due to the height of the light will be about 27 nautical miles. Plans for the station have been completed and bids will shortly be invited.

New U. S. Ship for Pacific Coast

Details of Lighthouse Tender Fern Which Differs Greatly From Any Previous Vessel Built in West

THE lighthouse tender FERN, recently completed by the Hall Bros. Marine Railway & Ship Building Co., Winslow, Wash., differs in many respects from any vessel previously constructed on the Pacific coast. The frames, keel, keelsons, garboards, topsides, and other important timbers are white oak. More than six tons of tobin bronze and composition metal were used in the fastenings. All plank butts are connected with edge-bolted lock scarfs. The skylights and companionways are teak. The hull is protected by copper sheathing to a point 12 inches above the water line. The engine and fire rooms are enclosed in a steel casing.

The principal dimensions are as follows.

	Feet	Inches
Length over all	112	0
Length over normal load water line ..	100	0
Breadth, extreme load water line ..	22	0
Depth of hold, top of main deck beam to top of keel	10	3½
Draft to load water line	8	0
Displacement, tons	225	

The hull is wood throughout with the exception of the engine and fire room casing and tank and auxiliary machinery foundations, which are steel. The keel is white oak, sided 12 inches and molded 10 inches, fitted with lock shafts and fastened with ¾-inch and 1-inch tobin bronze bolts. The false keel shoe is white oak, molded 2 inches and sided 12 inches, and is fastened with 6-inch composition spikes. The keelson is fir,

sided 12 inches and molded 10 inches. It is double bolted at each frame. The sister keelsons are fir, sided 8 inches and molded 8 inches. The frames are white oak, double spaced on 22-inch centers, molded 11 inches at the center line, tapering to 5½ inches at the top timber.

Fir Chosen for Planking

The garboard strakes are white oak, 4½ inches thick and 10 inches wide, secured by double ⅝-inch tobin bronze bolts. All bottom and side planking is 3-inch fir. The sheer strakes are 3-inch white oak, with a total depth of 30 inches. Three water tight bulkheads are provided in the hold, each made up of two courses of tongued and grooved 1½-inch fir planks. They are stiffened with vertical and horizontal fir stiffeners, being secured to the ceiling and deck by 3 x 3 x ¼-inch angles.

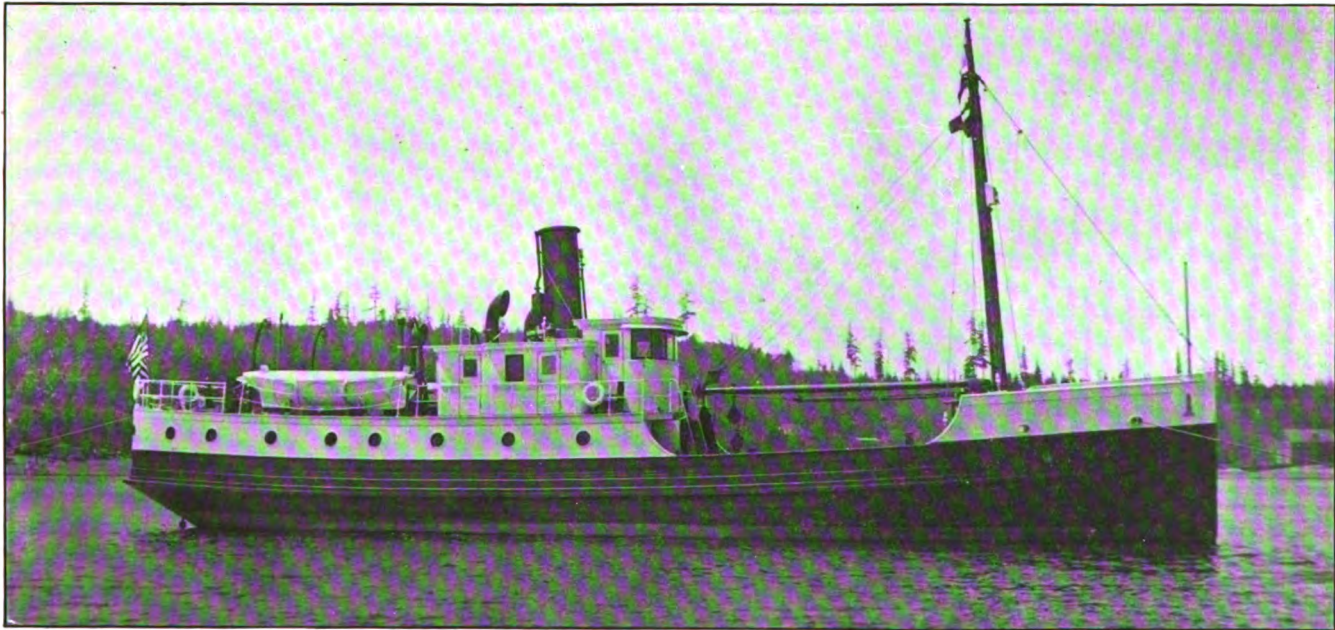
The main deck beams are fir, sided 8 inches and molded 8 inches at center and 6 inches at ends. They have a camber of 5½ inches in 22 feet and are spaced on alternate frames. The main deck planking is 7¼ x 2¾-inch pine. The covering board is white oak, 5 inches thick and 14 inches wide. The upper deck beams are 2⅞ x 5-inch fir, spaced 22 inches and having the same crown as the main deck.

The quarters for officers and crew are finished in natural oak. Portable pipe

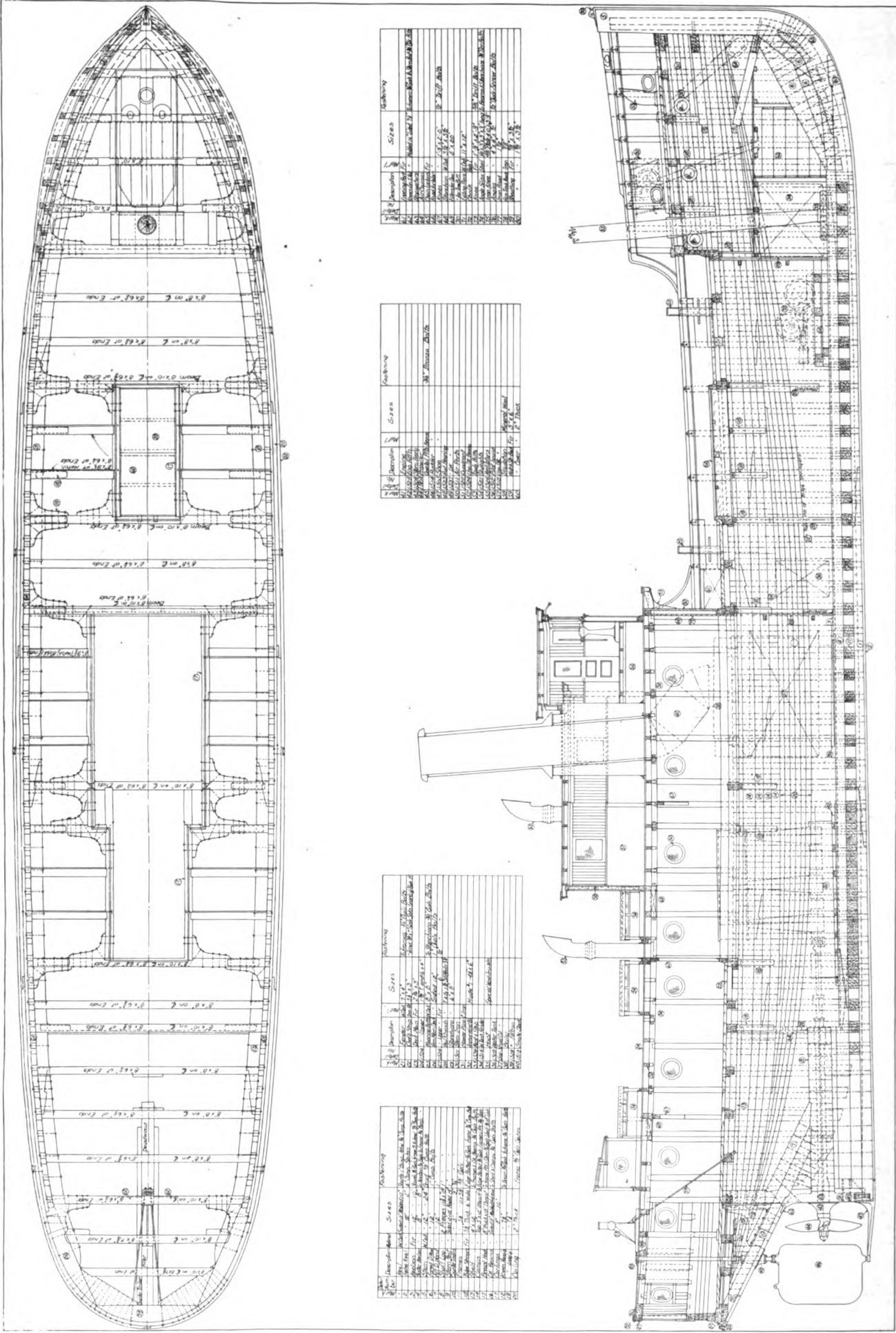
berths are provided in the crews' quarters. All staterooms and crew's quarters are equipped with lavatories providing hot and cold water.

Two boats are provided; an 18-foot power boat and an 18-foot whale boat. On the forecastle deck, a Hyde 4½ x 6-inch steam windlass is fitted. There are two 700-pound cast steel anchors, held by 120 fathoms of ⅞-inch stud link chain. A 7 x 8-inch double cylinder, four drum friction hoist is fitted in the main hold and operates the derrick boom lifts, purchase hoists and two vertical deck capstans.

The steering gear consists of a bronze stand and wheel, connected by tobin bronze shafting to a spur gear and rack. The rudder frame is cast manganese bronze. A 5-kilowatt turbo-generator is located in the engine room. The turbine is of the Sturtevant type, operating a Crocker-Wheeler generator, which runs at 4,000 revolutions per minute at 110 volts. All electric wiring is run in steel insulated conduits. All quarters above the main deck are heated by steam. Two steel tanks are provided in the forward hold, each having a capacity of 783 gallons. Another tank in the after end of the main hold has a capacity of 1,565 gallons. The fresh water pump is of the Blake & Knowles type. Hot water is secured through a Schutte-Koerting hot water heating apparatus. The main engine is of the vertical,



NEW LIGHTHOUSE TENDER FERN



PLAN AND PROFILE OF FERN, SHOWING SCANTLINGS

inverted, direct acting, three-cylinder, triple expansion type, furnished by the Heffernan Engine Works, Seattle; it has 10-inch, 17½-inch and 28-inch diameter cylinders with a stroke of 18 inches. The high and intermediate pressure valves are of the plug piston type, the low pressure valve being of the balanced slide type. The cast iron cross-head guides are of the bar type, and are cored for the circulation of cooling water. The turning gear consists of a cast iron wheel attached to the after coupling of the crank shaft and connected to a cast steel worm. A vertical, direct acting reversing engine, with a 5-inch diameter cylinder and 10-inch stroke also is provided. The throttle valve is of the ¾-inch rotary slide type and is operated from the engineer's platform. All working parts excepting the valve links and valve stem guides are lubricated by combination sight and wick feed oil distributing boxes. The main engine is secured to the vessel by

duty. A Morris 5-inch, suction, centrifugal pump, direct connected to 5 x 5-inch vertical engine, has been installed. A feed and filter tank feed water heater, feed pump, injector and fire and bilge pump also are provided.

An Almy water tube boiler, having 1,790 square feet of heating surface and 4½ square feet of grate surface is provided. It was built for a working pressure of 200 pounds and is arranged for burning oil. However, it is fitted with grate bars and can be readily changed to a coal burning type. The fuel oil burning system is of the mechanical atomization type, equipped with Dahl burners. The equipment consists of two 4½ x 2¾ x 4-inch Worthington horizontal, duplex piston pumps, with suction from the fuel oil tanks through duplex suction strainers. The oil is led to the burners through duplex strainers and oil heaters.

Two fuel oil tanks, each having a capacity of 2,100 gallons, are located

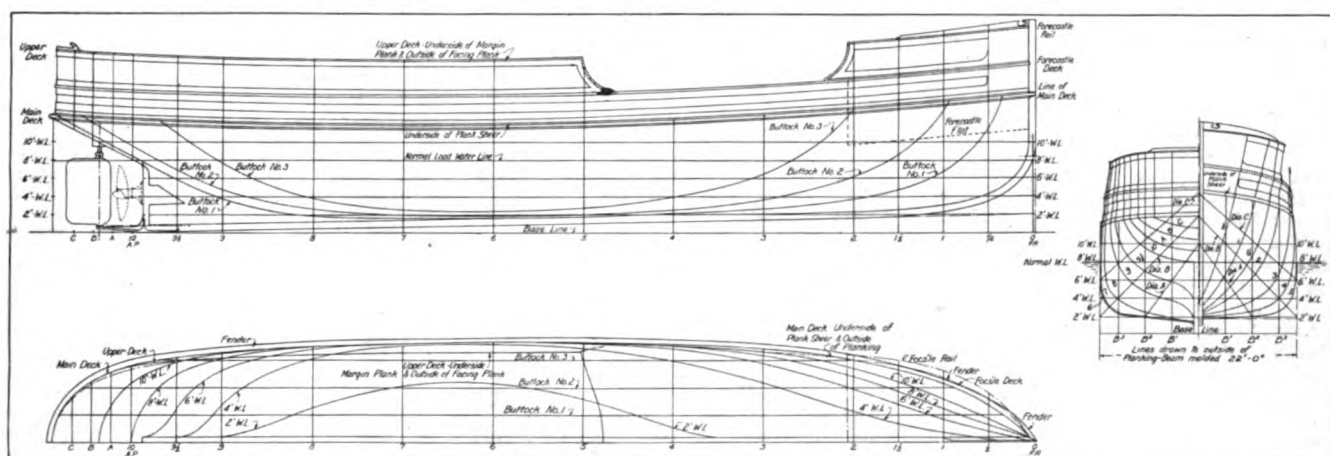
of FERN. All deck machinery was tested the following day. The final acceptance of the vessel was made shortly afterward.

A two and one-half hour acceptance trial under full speed, was made at this time, with the following results:

Displacement, tons	226
Average speed, knots	9.75
Average revolutions per minute, main engine	156
Average slip of wheel, per cent.	23.1
Oil used per hour, run No. 1, pounds, average	413
Oil used per hour, run No. 2, pounds, average	444
Maximum revolutions per minute	167
Maximum total indicated horsepower ..	355
Average total indicated horsepower	331
Average boiler pressure, pounds	200

Old Frigate Passes

All that was left of the frigate NIP-SIC, which helped make American naval history for nearly 50 years, was recently consigned to the flames on the shore of Lummi island, Bellingham bay, Wash. This vessel was one of Admiral David G. Farragut's fleet at the battle of Mobile bay, and was the only American



LINES OF NEW LIGHTSHIP

1½-inch tobin bronze bolts driven from the outside of the planking. Thirty of these bolts were used, varying in length from 3 to 4 feet.

The crank, thrust, and propeller shafts are 6-inch forged steel, bolted together by disc couplings. The propeller is manganese bronze and is provided with four blades of semi-towboat type cast solid with the hub. Its diameter is 6 feet 4 inches, the pitch is 8 feet 3 inches and the developed area is 14.2 square feet. A condenser for handling the circulating water is provided. Its inside diameter is 2 feet 9 inches and the length between tube sheets is 5 feet 6 inches. There are 568 ¾-inch tubes, the cooling surface being 612 square feet.

The main air pump is of the suction valveless type, 9½ inches in diameter with a stroke of 8 inches. A 3 x 5 x 4-inch Blake & Knowles vertical, simplex, double acting suction, valveless auxiliary air pump is fitted for port

beside the boilers. These tanks are of 5/16-inch steel plate and are mounted on steel foundations. The oil heaters were furnished by the Union Iron Works, San Francisco. A disc type meter, located between the pump and heaters, registers the quantity of oil used. The oil also can be measured by two hydrocators, which were furnished by the Sterling Co. These instruments are connected by capillary tubing to air chambers in the bottom of the tank and show in feet and inches the height of oil in the tanks.

The piping is mainly seamless drawn steel. Brass steam gages, furnished by the American Steam Gage Co., are used throughout.

The official eight-hour trial trip under full speed, was made on Puget Sound recently. The trial board was W. C. Debrill, inspector of the sixteenth lighthouse district, chairman; Robert Warnick, inspector of the seventeenth district, and Captain Leadblatter, master

ship to survive the great typhoon at Apia, Samoa, in 1889.

The typhoon came up without warning. Several vessels were inside a coral reef at the time. Their captains, seeing the danger, made quick efforts to race outside. When the wind struck, the vessels became unmanageable, and a few minutes later all but three went on the reef and were destroyed. NIP-SIC lost her sails and floundered about, and colliding with the German warship EBER, sent that vessel to the bottom. Her men rescued most of EBER's crew and she beat on against the storm.

Midshipman Jackson jumped to the mainmast, and calling to the crew of 540 men to follow him, distributed them about on the masts, literally making a human sail. With this assistance, the man at the helm was enabled to get steerage way, so that NIP-SIC managed to make the open sea and ride out the gale. It is estimated that the salvage of the old vessel will bring about \$15,000.

Late Decisions in Maritime Law

Legal Tips For Ship Owners and Officers

Specially Compiled for The Marine Review

By Harry Bowne Skillman

Attorney at Law

A BILL of lading exempting a ship from liability for damage to cargo from decay does not include such decay as is caused by the negligence of the carrier, but only such as is brought about from causes which may be termed inherent in the cargo itself.—ANNA, 233 *Federal Reporter* 558.

The decision in the case of *J. P. Schuh*, 223 *Federal Reporter* 455, is authority for the statement that persons employed as deck hands on a steamer, which was in the capacity and occupation of a towboat, under an ordinary contract of hiring, without writing of specific terms of any kind, are not seamen in contemplation of the statutes of the United States, providing for the contracts between vessels and their seamen, and prescribing the rights and duties incident to that relation.

The case of *Ulster Brick Co. vs. Murtha & Schmohl Co.*, 154 *New York Supplement* 834, lays down the propositions, (a) that where a brick cargo was purchased without any bill of lading or assignment of the contract of carriage, by the act of purchase the buyer undertook to unload without unreasonable delay, as well as to pay for any additional towage and wharfage caused by ordering the discharging berth to be shifted; (b) once a vessel is on demurrage, the obligation to pay is continuous, regardless of weather or holidays thereafter, until the discharge is completed.

The circuit court of appeals, second circuit, lays down the rule, in the case of *Williams vs. Potter*, 223 *Federal Reporter* 423, that the courts have no authority to review the findings of steamboat inspectors refusing to examine an applicant for a pilot's license; the most they can do is to see that the inspectors act within their jurisdiction, and that the constitutional and statutory rights of citizens are not impaired. The court decided further that a rule of the board of supervising inspectors providing that an applicant for a pilot license whose application has been refused shall not be re-examined within a year after the first examination, does not violate any statute, and is reasonable and valid.

A collision on the Detroit river on a calm and clear night, in an 800-foot channel, between the steamships *STEPHEN M. CLEMENT* and *E. L. FISHER*, was declared, in the case of *Argo Steamship Co. vs. Buffalo Steamship Co.*, 223 *Federal Reporter* 581, to be due to concurring faults of both vessels: both being in fault for failing to maintain proper lookouts at and after the time the passing agreement was made and for inattentive navigation thereafter. *CLEMENT*, down bound, also being in fault in

that, although the master thought such passing dangerous and blew an alarm, he accepted the signal without alteration of his helm or reducing speed to bare steerageway, as required by the navigation rules of the Great Lakes.

A bill of lading prepared by a carrier providing that the ship is "not accountable to any extent for bullion, specie, * * * nor for any other goods of whatever description above the value of £20 (\$97.25) per package, unless the value be herein expressed and extra freight as may be agreed on be paid," was held void in the case of *Lines vs. Atlantic Transport Co.*, 223 *Federal Reporter* 624, as ambiguous and open to the construction that it was the intention of the carrier thereby to exempt itself from any liability whatever in case of packages exceeding £20 in value, if the question should arise in a country where such exemption is sustained as valid, but which under the law of the United States is void.

The Harter act, exempting a vessel and owner in certain circumstances from liability for loss of or damage to cargo resulting from faults or errors in navigation or in the management of the vessel, does not apply, according to the case of *Gilchrist Transportation Co. vs. Boston Insurance Co.*, 223 *Federal Reporter* 716, until the vessel has commenced her voyage. It was said further that a steamship, which after loading a cargo, moved from her berth to a place seven miles distant where she made fast to another vessel, to permit another vessel to load, and which had not been inspected and was not ready to sail, had not commenced her voyage. The court also held that a bill of lading cannot exempt a vessel from liability for damage to cargo due to the negligence of the carrier or its servants.

Hanley vs. Eastern Steamship Co., 109 *Northeastern Reporter* 167, holds that the only negligence for which a steamship company is liable, in an action for the conscious suffering of a passenger thrown overboard by the sudden lurching of the vessel and drowned, is that of the company's servants and agents. The case further holds that it cannot be said as matter of law, from the fact that a space on deck between a raft and a lifeboat was unguarded by any rail, and through which such passenger was thrown, that he assumed the risk of injury. Nor can it be said as matter of law from the fact that regulations of the United States require steamships carrying passengers to place lifeboats so that they can be launched in less than two minutes, that an easily removed chain bridging the unguarded space in the rail, through which a lifeboat passed when launched, was the

only practicable protection, since it might be found that passengers should have been excluded from the neighborhood.

It appeared in the case of *SENATOR RICE*, 223 *Federal Reporter* 524, that the railroad tug *LUZERNE*, with a carfloat on the side, backed from her slip in North River and started to turn up stream for the purpose of crossing the stream to Jersey City, and that there was a strong ebb tide, which swung the bow of the float temporarily down stream, from which direction the tug *SENATOR RICE* was approaching with a hawser tow. *SENATOR RICE* gave a signal to pass starboard to starboard, which was answered with a single whistle. Both vessels proceeded, a collision occurring between the carfloat and the barge in tow of *SENATOR RICE*. It was held that the ultimate courses of the two tugs were crossing, as *SENATOR RICE* should have known, and the starboard hand rule applied, which required *SENATOR RICE* to keep out of the way, and that she was in fault for not doing so; that *LUZERNE* was also in fault for not sooner stopping when the signals were crossed until the courses of the two vessels were definitely determined.

The duty of the privileged vessel, in danger of collision, was passed upon in the case of *SOUTHERN*, 224 *Federal Reporter* 210, the court saying: "So long as there is a chance that the burdened vessel will, after all, conform to the rules in time to escape a collision, it is the duty of the privileged to keep its course and maintain its speed, whenever by any possibility, a change of either might conceivably contribute to a collision."

Delays at wharves are, according to *Bailey vs. Manufacturers' Lumber Co.*, 224 *Federal Reporter* 806, at the charterer's charge, whether because the wharves were too full for discharging at full capacity, or because the consignee wrongfully refused to receive the cargo. The court further held that delay in obtaining papers from the custom house for discharging a vessel, if through the fault of the authorities, and not of the ship, is at the charterer's charge.

Griffin vs. Davison Lumber Co., Ltd., 224 *Federal Reporter* 648, is authority for the statement that a vessel seaworthy when a voyage commenced is not liable for damage to a cargo of lumber from water which entered by reason of her being strained and her seams opened during a severe, although not extraordinary, gale, but is liable for injury to the lumber from coal dust and dirt which was carried up from the timbers of the vessel by the water which leaked in.

In the Traffic Manager's Office

A Review of the Charter Market on Coasts and Lakes—Pointers
for the Men Who Get the Business

OCEAN freight rates within the past few days have reached new high levels for the war period. The market condition can best be described as a whirlpool of contending elements. Tonnage owners' ideas on rates are prevailing against anxious grain and coal shippers, who would rather pay a premium rate than give requested guarantees for demurrage on steamers at figures ranging from \$500 to as much as \$2,000 per day, according to the *New York Journal of Commerce*.

The general demand for charter tonnage continues strong, but owing to owners holding out for higher rates there is only a limited amount of business being transacted. Business is also restricted because of scarcity of steamers. The present practice of ship owners is to charter their vessels for single trips at advancing rates or one or two-year charters at guaranteed high rates.

The export grain demand, after a brief period of dullness in early September, has recently developed to such an extent as to upset even the most optimistic calculations. The quotations on grain tonnage have almost doubled within the past two months, going five and six pence beyond the high record established in the fall of 1914, with the upward movement still in full swing. From the beginning of September down to the close of business Oct. 5, grain charters have involved more than 115 steamers, with the additional feature that most of this tonnage is for prompt or almost prompt loading.

Owners Hold Out for Higher Rates

Ship owners who are being besieged with offers from grain shippers within the past fortnight have been limiting their charters to the month of October. It is the strong belief among the owners that the present record rate of 18d for grain to Liverpool, London or Glasgow, paid to regular lines, will be greatly exceeded as the year progresses. For this reason private owners who are now receiving 13s 6d, are holding to single voyage contracts. One of the direct results of this is that new advances in grain tonnage quotations are record-

ed with practically each new charter.

Coal rates have been displaced as the keystone rate to the general charter market by grain, despite the fact that the coal export demand has become greater than before. The people of Europe must have the foodstuffs though they may find themselves short of fuel; thus grain shippers, especially to Italy, France and England, are continuously outbidding coal exporters.

With Italy requisitioning additional steamers for transport use, France and England doing likewise in order to replace vessels disabled in war operations, and Greece taking a number of much-needed steamers out of the market for her own military uses, the scarcity of ships is rapidly becoming a serious factor in the world's trade. Each new vessel taken out of the general freight market means assurance of continuously advancing freight rates, in the fortunate private owner's viewpoint.

Berth Rates Make Record

The strong upward trend in ocean freight rates may be noted from the fact that grain berth rates are 18d per bushel to Liverpool, London and Glasgow, compared with a rate of 3½d to 4d in 1914, and a normal peace rate of 2½d. Two months ago the grain berth rate stood at 10½d to 11d.

Unwillingness of grain shippers to guarantee demurrage has been a factor in the premium rates now prevailing in the charter market. The most recent grain charters show that 14s has been paid for grain to the west coast of Italy, while 13s 6d is the prevailing rate to United Kingdom ports. Normal charter rates for grain tonnage run from 2s 6d to 4s.

Estimates by competent shipping interests state that Great Britain, France and Russia are now utilizing approximately 50 per cent of the cargo space on all steamers leaving Atlantic ports of the United States for transatlantic ports. This applies particularly to the regular steamer lines. The net result is that private shippers are having great difficulty in obtaining any proportion of prompt freight space, despite their willingness to pay high rates which are asked. The situation in this regard has

become so acute so far as the English lines are concerned that private shippers are unable to book space prior to the middle of November. All of the regular lines are operating extra steamers under charter, but as fast as these can be chartered the freight room is being taken up before announcement that the ships are on berth.

The following comparative table shows the course of ocean freight rates via the regular line steamers from Aug. 1 to Oct. 1, 1915:

	Liverpool.		London.	
	Aug. 1.	Oct. 1.	Aug. 1.	Oct. 1.
Grain, bu.	10½d	18d	10½d	18d
Oats, nom. qr. .	7s	8s	7s	9s
Flour, sacks, per 100 lbs.	45c	65c	45c	65c
Provis., per ton .	60s	*80c	60s	*80c
Cotton, comp'd, per 100 lbs. .	100c	125c	...	...
Cottonseed oil, bbl.	13s	13s	70s	70s
Measure, goods.	60s	*32c	60s	*32c

	Glasgow.		Rotterdam.	
	Aug. 1.	Oct. 1.	Aug. 1.	Oct. 1.
Grain, bu.	*11d	18d	9s	*35c
Oats, nom. qr. .	...	...	...	...
Flour, sacks, per 100 lbs.	50c	65c	50c	65c
Provis., per ton .	60s	*80c	*80c	*125c
Cotton, comp'd, per 100 lbs. .	...	...	130c	160c
Cottonseed oil, bbl. ....	...	...	100c	100c
Measure, goods	...	*22c	*40c	*45c

	Copenhagen.		Havre.	
	Aug. 1.	Oct. 1.	Aug. 1.	Oct. 1.
Grain, bu.	10s 6d	...	...	...
Oats, nom. qr. .	...	...	6s 6d	6s 6d
Flour, sacks, per 100 lbs.	55c	75c	55c	80c
Provis., per ton .	*125c	*150c	*125c	*125c
Cotton, comp'd, per 100 lbs. .	200c	200c	*125c	150c
Cottonseed oil, bbl.	125c	150c	300c	350c
Measure, goods.	80s	*50c	*20	*20

*Per 100 lbs. †September.

Note.—Where no quotation appears it means that ship lines have no freight space available.

Scarcity of Ships and Congestion at Docks

An official statement issued last month at London says that Great Britain alone has fully 1,500 ships on requisition for miscellaneous military services of all classes, mostly steamers. This is entirely outside of the refrigerator ship space, which has also been taken up extensively by the British government.

Ship owners are naturally watching the requisitioning activities of the various European governments, inasmuch as they base their charter rate mainly upon the supply of ships as well as the demand for tonnage. In the same connection they are carefully noting

the reports from the principal freight receiving ports abroad on the movement of rapidly accumulating quantities of freight. The congested conditions of the docks at London, Liverpool, Genoa, Havre, Bordeaux and Rotterdam, which last fall caused heavy losses to owners as well as demurrage-paying charterers, through delays of vessels ranging from five to 30 days, will, it is expected, be repeated this year.

It is a fact that the delays to vessels going to Italian and French ports already amount to 10 and even 20 days and the tie-up must soon become even more serious as the heavier ocean movement of grain cargoes gets under way. Some extension of the unloading dock and storage facilities at the ports of Liverpool and London during the past year may relieve congestion of shipping at those points this fall.

Strong Demand for Coal Tonnage

The demand for coal tonnage to the west coast of Italy is especially strong. Here again the market is a runaway affair so far as recent rate fluctuations are concerned. In the early part of September coal tonnage to Italy was available at 41s, with demurrage guaranteed. The current rate is all the way from 44s to 46s. To the river Plate 33s 6d was being paid late last month for coal tonnage, with shippers now willing to pay 36s to 38s and owners asking higher.

The new cotton crop export movement will soon begin. This year, however, with cotton on the British contraband list, the foreign movement must be considerably restricted. The lucrative cotton trade to Germany early in 1915 proved a bonanza for neutral shipowners for a brief period, but there is little prospect of this being repeated. Some adjustment of the British contraband order is expected, however, whereby shipments of reasonable size may be permitted to freely go forward to neutral European countries under strict guarantees against re-exportation to Germany.

Charters for cotton tonnage are now being made. As high as 160s has been paid for charters to Genoa, 147s to Havre and 145s to Liverpool. Regular line berth rates rule at \$1.50 per 100 pounds to Havre, \$1.25 to Liverpool and \$1.50 to Copenhagen.

W. E. Harvey, who has been associated with the Diamond Rubber Co. and the B. F. Goodrich Co., Akron, for 11 years, has been appointed sales manager of the Boston Belting Co., Boston, manufacturer of mechanical rubber goods.

More Jobs for Coast Yards

CHAS. M. SCHWAB, who, through the Bethlehem Steel Corporation, now controls a number of ship yards, including the Fore River Ship Building Corporation, Quincy, Mass.; the Harlan & Hollingsworth Corporation, Wilmington, Del.; the Samuel L. Moore Corporation, Elizabethport, N. J., as well as the Union Iron Works, San Francisco, now is negotiating for the Maryland Steel Co., Sparrows Point, Md., through the purchase of the Pennsylvania Steel Co., the parent corporation. Mr. Schwab's belief that in the next few years a notable era in ship building construction will be enjoyed by this country, is accepted in well-informed circles as signifying that the Maryland Steel Co. is one of the most attractive factors for him in the control of the Pennsylvania Steel Co. Eastern press comments also ascribe to Mr. Schwab and associates, some desire to obtain the Bath Iron Works, Bath, Me.

Additions to Atlantic coast yard facilities are proceeding steadily. The Wm. Cramp & Sons Ship & Engine Building Co., Philadelphia, have awarded a contract for a new shop, 212x540 feet, which is only part of the extensions planned. The Samuel L. Moore Corporation also has large extensions under way. The Cramp yard and the Fore River Ship Building Corporation have been buying machinery liberally for the equipment of their new shops. The New York Ship Building Co. also is extending its plant. Other plans are reported in prospect and it seems a safe statement that during the next six months or a year, more new yard capacity will be added along the Atlantic coast than in any similar period for many years, if ever before in history.

New Boats Under Negotiation

The most important negotiations for new tonnage now under way appear to pertain chiefly to craft of the larger tonnage class. The Ward line just has placed contracts with the Cramp yard for two 15,900-ton passenger and freight boats for the Cuban Mail Steamship Co. The reported cost is \$2,750,000. The boats will have accommodations for 250 cabin and 550 steerage passengers each and their speed will be 20 knots. Delivery is to be made within 18 months. This is one of the largest new vessel contracts awarded in the present building movement. A large number of other vessels of the 10,000 to 15,000 tonnage class, are in sight. One estimate from a prominent ship builder

places the figure at fully 25. The Ward line also has placed a second 6,000-ton freight boat with the Seattle Construction & Dry Dock Co. The Harlan & Hollingsworth Corporation has received another merchant boat of moderate size, the purchaser of which has not yet been announced. Two more 9,000-ton tankers have been placed with the Fore River yard by the Texas Oil Co. The new boat awards in September bring to 61 the total announced awards to eastern builders during the past ten months.

Some large bonuses have been offered to ship building companies for special deliveries of new boats. One eastern yard was offered \$100,000 additional to complete within 12 months a contract which originally called for 18 months. The yard was unable to avail itself of this bonus, since its capacity is booked for two years ahead.

Lake Trade Booms

THERE never has been a market like the present one on the Great Lakes. It is useless to endeavor to find an analogy between it and conditions which existed 20 years ago when equivalent rates were being paid. The average carrier on the lakes 20 years ago did not much exceed 300 feet in length and carried less than a third of what is now carried in a modern carrier. Moreover, dispatch was nothing like it is at present, when vessels are able to make a round trip in a week. A modern carrier capable of carrying 450,000 bushels makes money fast at 6 cents. The temptation to enter the trade has been found irresistible by some vessels whose whole time is covered by contract ore. They have slipped a trip into the grain trade with the result that they are behind on their ore schedules, and it is now clear that the whole ore fleet will have to move right up to the last minute in order to meet the demand of the consumers. Tonnage has been almost completely absorbed and the wild tonnage that is free will not tie up in the ore trade. Some of the vessel owners that are behind on schedules have been offering \$1.30 a ton to move ore, without takers. There is little tonnage on the market at \$2 for ore, which is about what the grain rate works out at present.

The September movement of ore was a little disappointing to those who had expected that it would exceed the August movement, but nevertheless it is the largest September movement in the history of the trade, exceeding the movement of September, 1912, which had

hitherto held the record, by 575,916 tons. Had it not been for the withdrawal of tonnages from the trade during the last week of September, the movement undoubtedly would have reached August figures.

The grain rate from the head of the lakes was established at 6 cents for the first two weeks in October, but no chartering of any importance has been done for November yet. The storage rate was fixed at 6 cents some time ago but as the ore trade is tightening its grip all the time, it is quite likely that storage rates will experience a further advance. Even small boats are shunning the coal trade, as they can make far more money running light to the head of the lakes and coming back with a cargo of grain.

Boston-London Line

The Boston office of the Cunard Steamship Co. has announced that it will inaugurate a Boston-London direct service beginning with the sailing from Boston on Oct. 20 of the British freighter *HEADLEY*. The only Boston-London service now is that of the Leyland Line.

There will be Cunard sailings east and west every three weeks, beginning with freight and looking toward passenger service. The date for the establishment of the latter is not definitely set, doubtless because it depends upon the progress of the war.

Traffic Delayed

Disastrous effects on American trade in the far east of a continued shortage of freight tonnage on the Pacific are predicted in a recent report on the freight situation made by Consul General George E. Anderson at Hong Kong, China, to the bureau of foreign and domestic commerce at Washington. The report indicates that Japanese shipping lines, which virtually control the Pacific trade, will continue to discriminate in favor of Japanese shippers in apportioning space in steamers.

Negotiations are now nearing completion for the establishment of a Chinese-American shipping line in the Pacific which will, to some extent, relieve this situation. The new line, which is to be financed by American capital, will receive a subsidy from the Chinese government and its ships will fly the Chinese flag.

"The most uncertain element in the entire situation," says the consul general's report, "is the question of whether or not the vessels of the Pacific Mail Steamship Co. will have to be taken off the transpacific run as a result of recent legislation in the United States. Action so far taken

by agents and others concerned in eastern ports contemplates the complete cessation of the service of five ships by January, 1916, and of the sixth vessel by March 4.

"The removal of these vessels from the transpacific run will precipitate a situation of the gravest sort, involving a stoppage of practically all of the new business in the far east obtained by the American manufacturers since the beginning of the war, as well as interfering in a most critical way with American manufacturers securing certain raw materials in this part of the world. The shortage of tonnage for the fall and winter trade even with these vessels in service will be acute and serious, and will profoundly affect all far eastern trade. Without these

vessels the situation will become simply impossible."

Mr. Anderson says the withdrawal of British ships in the Indian trade for war use has given the Japanese lines in that trade a great advantage. Extra ships have been added by the Japanese lines serving Calcutta and Bombay and shipyards in Japan are working overtime turning out new vessels.

"Extra ships have also been added to the Japanese service to Australia," continued the report. "Japanese trade with Australia is being boomed in every way possible, special activity being shown in the efforts of Japanese interests in Hong Kong to get in touch with connections of trade in Australia, formerly held by German interests."

Canal Trade Grows Fast

STRIKING details of the growth of this country's coast-to-coast water traffic during the Panama canal's first fiscal year of operation, were made public recently at a hearing before the interstate commerce commission. The hearing was on the application of the Southern Pacific Co. to reduce the rates on 29 commodities via the Morgan Line mixed water-and-rail route for westbound transcontinental traffic. The reduction is designed to meet the competition of the regular Panama steamship lines and was vigorously opposed by these interests.

Rapid Growth of Panama Water Traffic

One of the exhibits presented by the attorney for the steamship lines showed the respective volumes of freight carried by the steamship lines in the Panama coast to coast trade route both prior to and since the Panama canal has been in operation. It was shown from the exhibits that the American - Hawaiian Steamship Co., with a fleet of about 25 steamers, increased the volume of its westbound (Atlantic to Pacific) water borne freight in the first fiscal year of operations through the Panama canal over the volume carried during the preceeding fiscal year by 264,232 tons, or about 90 per cent.

The American-Hawaiian Line during the fiscal year closing Aug. 1, 1914, carried 274,847 tons of freight to Pacific coast terminals from Atlantic coast ports, and during the succeeding fiscal year, the first year of operation directly through the Panama canal, the same line carried 539,079 tons of west-bound cargo. The Luckenbach Steamship Co. with

a fleet of from 12 to 15 vessels in the coast to coast trade routes, more than doubled its volume of westbound tonnage in the first fiscal year of operation through the Panama canal, other exhibits also show. The Luckenbach line is second in rank as all-water freight carriers via the Panama route. In its fiscal year, ending June 30, 1915, this line carried a total of 177,982 tons of westbound cargo, as compared with only 74,161 tons of westbound cargo during the comparative period preceding the opening of the Panama canal.

The third steamship line in rank as trade operators via the Panama canal is the Atlantic & Pacific Steamship Line (W. R. Grace & Co.), with seven or eight steamers. The exhibits submitted to the interstate commerce commission show that these steamers carried a total westbound freight tonnage of 76,069 tons in the first fiscal year of the Panama canal's operation, as compared with 45,477 tons in the preceeding comparative fiscal year.

The accompanying table shows the volume of westbound freight tonnage carried by the principal or regular steamships plying through the Panama canal in the comparative fiscal years 1913-14 and 1914-15. The table, covering the fiscal year immediately prior to the opening of the canal and the fiscal year after the opening, indicates in a striking manner the growth of the westbound freight traffic via the direct all-water route.

Other exhibits submitted to the interstate commerce commission by the Panama steamship lines show the manner in which the increased freight traffic via the all-water route from

the Atlantic ports to the California terminals at San Francisco, Los Angeles and San Diego has been divided by the principal lines from July, 1914, to the end of June this year. These statistics show that the American-Hawaiian carried approximately 55.57 per cent of the total westbound freight to the California terminals in the first fiscal year of operations directly through the new waterway, the Luckenbach ships carried 29.64 per cent, the Grace steamers about 7.56 per cent and the Panama-Pacific Line about 2.10 per cent of the total. The detailed table is as follows:

(Twelve months ended June 30, 1915.)

Line and Port—	Tons	Total of total tonnage	Per cent of total tonnage
American-Hawaiian—			
San Francisco	227,853		
Los Angeles and San Diego	94,856	322,709	55.57
Luckenbach—			
San Francisco	120,019		
Los Angeles and San Diego	52,086	172,105	29.64
Atlantic & Pacific—			
San Francisco	43,885	43,885	7.56
Total tonnage of principal lines		538,699	

IN ADDITION to the five regular lines operating out of Puget Sound to the orient and three to European countries, by way of the Panama canal, new lines frequently are added which give the ports of the northwest coast increasingly better shipping facilities. The "tramp charters" operating out of Puget Sound in the oriental, European and Atlantic-Pacific trade seem to be on the increase in despite of the tremendous advance in charter rates since the outbreak of the war. The fleet under contract to carry grain from Puget Sound and Columbia River points the present season shows little or no loss in net tonnage as compared with the fleet under charter last year at this time.

The fleet already under charter this season numbers 46 vessels, most of which are sailing vessels, with an aggregate tonnage of 101,677. Last year

coast of South America will be given shortly. The Norwegian freighter *SINOLOA* will engage in the Seattle-West Coast South American trade. She is owned by a San Francisco firm which announces that the ship will operate regularly in the South American trade out of Seattle in connection with its companion vessel, *BAJA CALIFORNIA*.

Several Portland transportation men recently announced that they have a company in the formative state which will put a fleet in operation between Puget Sound, Columbia river and the west coast of South America to handle lumber of the Pacific northwest. In addition to the above improvements and prospective improvements in the shipping facilities to all the ports of that section, two vessels of the C. H. Sprague & Son's Line from Boston to Seattle are now operating. As soon as business justifies, it is planned to add new steamers.

At Vladivostok

Since Vladivostok is almost the only Russian port that has direct communication with other countries for private imports and exports, it has been proposed to organize the transportation of goods from that port, not only by rail, but also by the water route. It is planned to transport large shipments, including cotton, by the Amur river.

However, the question of utilizing the Amur river for transporting freight from Vladivostok meets with considerable difficulties. The river at present can not be used by ocean steamers, because its depth in some places does not exceed 16 or 17 feet, while the depth required by ocean steamers is 24 feet. The necessary transshipment on smaller steamers would cause considerable difficulties and delay, and possibly deterioration in the goods. Moreover, there is an insufficient number of ships available for navigation on the Amur.

Building has been commenced in Vladivostok of a railway track from the admiral's wharf to the Naval Port territory, thus enlarging the length of the equipped coast line of the Golden Horn Bay and increasing the possible number of storehouses. The town intends to erect along the new tracks, sheds for sheltering the goods discharged.

The Russian Volunteer Fleet is to receive for 1915 the following subsidy: Vladivostok-Tsuruga and Vladivostok-Shanghai Lines, 558,000 rubles (\$303,000); Vladivostok-Odessa Line, 178,000 rubles (\$92,000) and Vladivostok-Okhotsk-Kamchatka & Tartar Straits Line, 511,000 rubles (\$263,000).

HOW PANAMA CANAL HAS INCREASED WESTBOUND FREIGHT VIA STEAMSHIP ROUTES

	American-Hawaiian S. S. Co. 1913-14 1914-15 (Tons) (Tons)	Luckenbach S. S. Co. *1913-14 *1914-15 (Tons) (Tons)	Atlantic & Pacific S. S. Co. (W. R. Grace & Co.) *1913-14 *1914-15 (Tons) (Tons)	Panama-Pacific Line (Int. Mer. Mar.) *1913-14 *1914-15 (Tons) (Tons)
August	24,259	39,624	5,272	5,282
September	19,656	43,315	3,918	14,609
October	30,099	36,271	4,441	11,676
November	30,868	26,511	5,017	12,604
December	30,525	48,499	3,091	17,360
January	21,717	51,585	5,152	15,304
February	19,740	44,505	5,443	9,866
March	26,400	51,672	5,394	13,853
April	21,961	79,452	17,018	21,474
May	17,995	38,697	6,255	28,688
June	19,803	47,290	5,918	14,907
July	11,836	32,413	9,242	12,248
Total	274,847	537,079	*74,161	*177,982
			*45,477	*76,069
				*12,141

* Fiscal year runs from July 1 to June 30.

Panama Pacific—			
San Francisco	12,141	12,141	2.10
Emery S. S. Co.—			
San Francisco	9,006		
Los Angeles and San Diego	3,431	12,437	2.15
E. J. Dodge S. S. Co.—			
San Francisco	2,895	2,895	.50
Arrow Line—			
San Francisco	2,502		
Los Angeles and San Diego	1,396	3,898	.68
Northern Pacific Ry.—			
San Francisco	2,300	2,300	.40
Tallac S. S. Co.—			
San Francisco	1,600	1,600	.27
West Coast Nav. Co.—			
San Francisco	6,810	6,810	1.13
Total tonnage of smaller lines		42,081	100.00

The steamers *KANKAKEE* and *MANITOWOC* were recently admitted to American registry under the act of Aug. 18, 1914. *KANKAKEE* was formerly the Norwegian steamer *LAPLAND* and *MANITOWOC* was formerly the Greek steamer *SPYROS VALLIANOS*. The total number of vessels admitted under this act since June 30, 1915, is 15, with a gross tonnage of 42,151 tons.

at this time it was 104,171 in tonnage, and in 1913, 62,731. All but three of the ships chartered to date will carry grain from Puget Sound and Columbia River points to the United Kingdom. Two vessels will load for Australia and one for South Africa.

Notwithstanding this fleet is nearly the same in number and tonnage as last year, the rates are more than double. For instance, last year the charters accepted rates from Puget Sound to the United Kingdom on grain at 28 to 30 shillings (\$6.81 to \$7.30). This year the lowest rate is 67 shillings 6 pence (\$16.41), and but two ships were secured at that figure. Twenty-six vessels of the present fleet have been chartered at 80 shillings (\$19.46) and some few as high as 90 shillings (\$21.90). In one instance rates were 97 shillings 6 pence (\$23.72), with an option of 100 shillings (\$24.33) to France.

Better shipping facilities to the west

Alaska Steamer Is Sunk at Dock

Dense Fog at Seattle the Cause of Collision Between *Paraiso* and *Admiral Watson*—Edith Founders in Gulf of Alaska

By R. C. Hill

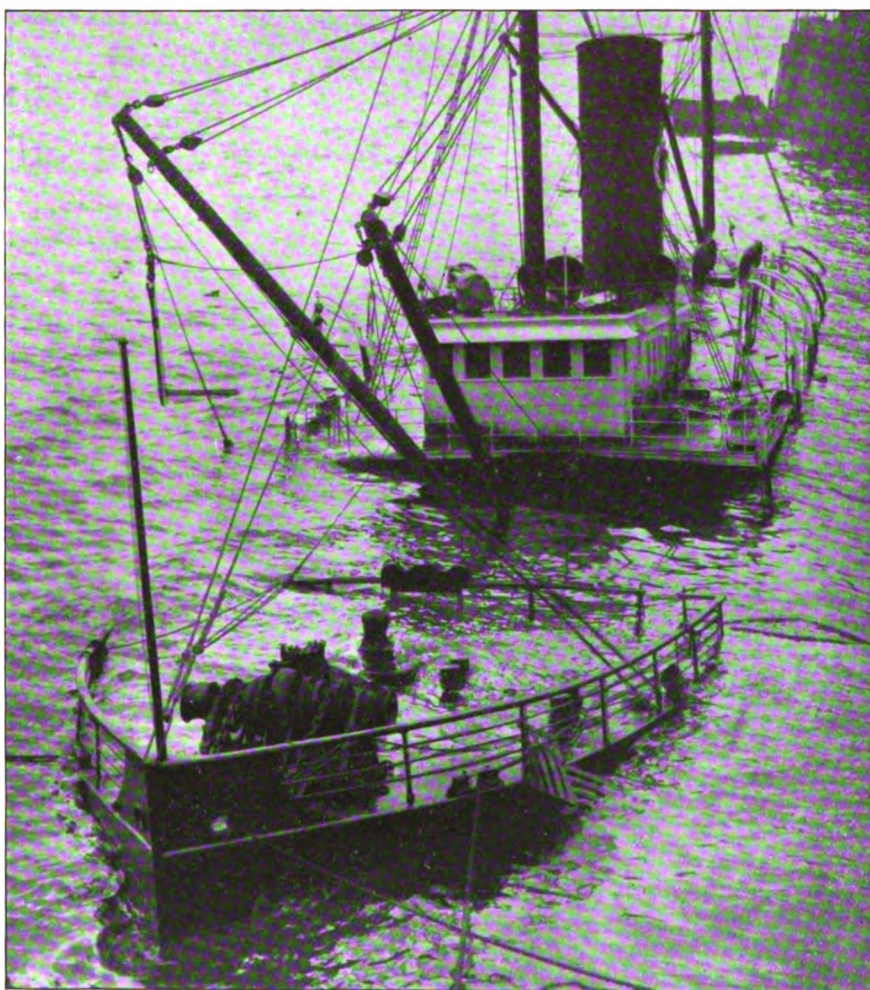
MARINE underwriters have been heavily hit by two recent marine mishaps on the Pacific coast. The steamship *ADMIRAL WATSON*, of the Pacific-Alaska Navigation Co.'s Admiral line, was sunk at the Bell street wharf, Seattle, by the steamship *PARAISO*, which is under charter to the Pacific Coast Steamship Co., one man being fatally injured. The freighter *EDITH*, of the Alaska Steamship Co., foundered in heavy weather in Alaskan waters. The owners of *ADMIRAL WATSON* libeled *PARAISO* for \$357,000, but the courts have since limited the liability of the latter vessel to her value, \$180,000. *EDITH* was valued at \$200,000, and her cargo of 2,800 tons of copper concentrates at \$275,000. *ADMIRAL WATSON*, a freight and passenger vessel plying between Seattle and Alaskan ports as far west as Seward and Knik, the terminus of the new government railroad into the coal fields, was lying at the Bell street public wharf loading steel rails and lumber for the federal railroad. *PARAISO*, just arrived from southeastern Alaska with canned salmon, was shifting about the harbor in an unusually dense fog, when she crashed into *ADMIRAL WATSON*, striking her on the starboard side abreast the mainmast. The injured vessel at once began to fill, but her master, taking in the situation at a glance, had the steamer warped along the berth into shallow water. There she sank in about 30 feet, at high tide, the upper houses

being submerged. About 200 tons of cargo were aboard at the time. Later on the same day *ADMIRAL WATSON* took a heavy list offshore and settled into deeper water, carrying away her shore moorings. The Seattle Construction

thorough overhauling, after being submerged for several weeks. Her upper works, having been damaged by fuel oil, had to be rebuilt. This vessel belongs to the same fleet as *ADMIRAL SAMPSON*, a larger vessel of similar

type, which was sunk in collision on Puget sound by the Canadian Pacific express liner *PRINCESS VICTORIA*, in August, 1914. *SAMPSON* went down in deep water and proved a total loss, a number of lives being lost.

ADMIRAL WATSON came out to the Pacific from New York in 1906, after being purchased by the Alaska-Pacific Navigation Co. from the American Mail Steamship Co., New York. She was built in 1901 by the Craig Ship Building Co., Toledo, O., and christened *WATSON*. She was taken to the Atlantic, and for several years was operated out of New York in the West India trade. Upon being brought to the west coast she was placed in service between Seattle and San Francisco, carrying



ADMIRAL WATSON SUNK BY COLLISION IN FOG AT HER DOCK IN SEATTLE HARBOR

& Dry Dock Co. has been awarded the contract for repairs to *ADMIRAL WATSON*. *PARAISO*, which is owned by the Long Beach Steamship Co., of California, is under a six months charter to the Pacific Coast Steamship Co., of Seattle, and has been used during the summer in the Alaskan trade. The fact that she is a chartered vessel and that *ADMIRAL WATSON*, being moored at a berth alongside a wharf, was entirely blameless, raises a number of interesting marine insurance questions. *ADMIRAL WATSON* required a

freight and passengers. About a year ago she was completely overhauled, renamed *ADMIRAL WATSON* and placed on the run to southeastern and southwestern Alaska. Her dimensions are: Length, 253.1 feet; beam, 38 feet 4 inches; depth, 22 feet 8 inches. She is an oil burner and is fitted with double bottoms, wireless and submarine signals. Her gross tonnage is 1,955 and her net tonnage is 1,256.

The foundering of *EDITH* again draws attention to the dangers of carrying concentrates in the stormy wa-

ters of Alaska. This cargo, extremely heavy and carried in semi-liquid form, shifts with every roll of the vessel; and once a vessel lists, the cargo cannot be trimmed or the ship righted. In addition to EDITH, the steamship DIRIGO, of the same fleet, was lost under somewhat similar circumstances last November, entailing a heavy financial loss. Other vessels of the Alaska fleet have had narrow escapes while freighting copper concentrates.

EDITH was returning from Bering sea and put into Latouche for concentrates. In the gulf of Alaska she encountered very heavy weather, which threw her on her beam ends. So violent was the sea that it was necessary to abandon the vessel after several hours of futile effort had failed to trim her cargo. The officers and crew saved themselves only by swimming to a lifeboat after leaping from

Later, being granted American register, she was bought by the Northwestern Steamship Co. and eventually became the property of its successor, the Alaska Steamship Co., which has used her in the Alaska trade, principally to Nome and St. Michael in the Bering sea. Two of this company's officials have recently visited the Atlantic coast for the purpose of negotiating for the purchase of several vessels for the Alaskan trade.

Let in Americans

Lack of sufficient Canadian tonnage to handle the grain crop through the Great Lakes is said to be responsible for the recent decision of the Dominion government to permit American ships to trade between Canadian lake ports. During the navigation season of 1914 there were 105 vessels of

had a bad year," says Mr. Chamberlain, "and this action on the part of the Canadian government will help to improve conditions. The navigation season will continue through as much of November as weather conditions will permit."

Jap Trade Curtailed

The serious effect on Pacific tonnage of the withdrawal of the Pacific Mail steamers is discussed in a report issued recently by the department of commerce. The steamers, it has been stated upon authority, were withdrawn because of the burden the new seamer's act places upon American ships. The statement follows:

The withdrawal of the Pacific Mail steamers from the transpacific trade will have a most serious effect upon the Japan-American trade in these days of scarcity of bottoms.

To demonstrate the tonnage to be taken out of the service between San Francisco and Japan ports via Honolulu a table showing the cargo capacity of the Pacific Mail liners and that of the Toyo Kisen Kaisha liners is given as follows:

PACIFIC MAIL LINERS.

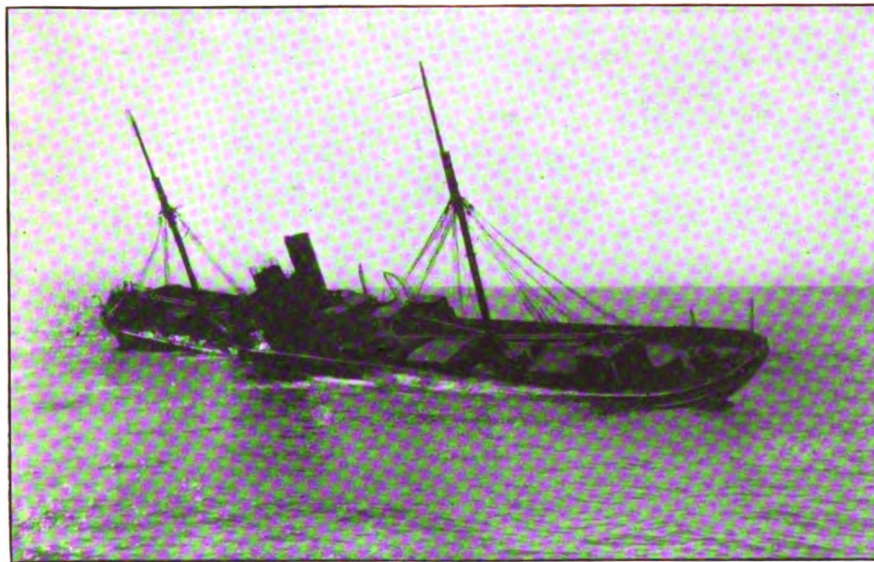
	Cargo capacity, tons.	Average shipment in Yokohama and Kobe, tons.
Mongolia	15,000	6,500
Manchuria	15,000	7,000
Korea	8,700	4,000
Siberia	8,500	4,000
China	3,800	1,700
Total	51,000	23,200

TOYO KISEN KAISHA LINERS.

Tenyo Maru	6,500	4,500
Chiyo Maru	6,500	4,550
Shinyo Maru	6,500	4,550
Nippon Maru	3,000	2,100
Total	22,500	15,750

It will thus be seen that the Pacific Mail liners assigned about 46 per cent of their cargo capacity to shipments in Yokohama and Kobe, and the Toyo Kisen Kaisha liners about 70 per cent, the rest of the space being assigned to shipments from China ports and Manila. It follows that the withdrawal of the Pacific Mail liners from the transpacific business means a decrease of cargo capacity of 23,200 tons as far as Japanese trade is concerned.

Even if the entire capacity of the Toyo Kisen Kaisha liners be devoted to the Japan-American trade, though such is in reality impossible, there would still be a shortage of 16,000 tons. Various Japanese steamship companies and individual shipowners are said to be contemplating filling the vacancy, but nothing definite has yet been decided upon. It is impossible to fill the vacancy perfectly, and the probable result will be an increase in freight rates.



EDITH FOUNDERING OFF ALASKA COAST

the vessel. They were picked up several hours later by the steamship MARIPOSA of the same fleet, which got a line aboard the derelict. The hawser carried away, however, and in the heavy weather it proved impossible to make further attempts to save EDITH. She was abandoned to her fate and when last seen was sinking rapidly.

EDITH was one of the largest freighters in the Alaska trade out of Seattle, being a strongly built vessel of 2,369 gross and 1,495 net tons. Her length was 286 feet and her beam 37 feet. She was launched in 1892 from the yards of J. L. Thompson & Sons, Sunderland, Eng., and christened GLENOCHIL, having been built for the Glen line. In 1900 she was brought to the Pacific and operated for a time in the coal trade between Nanaimo, B. C., and San Francisco.

Canadian register employed in the grain-carrying trade on the Great Lakes, their total tonnage being 350,000. Owing to the transfer of many of these ships to the ocean trade, there are available this season only 56 Canadian ships, with a combined tonnage of 109,000.

It is stated that this partial suspension of the Canadian navigation laws is to be operative only during the present navigation season. The effect of the innovation will be that American lake vessels will participate this season to a much larger extent than ever before in the grain-carrying trade of Fort William and Port Arthur.

E. T. Chamberlain, United States commissioner of navigation, states that this report will be welcome news to the owners of American ships engaged in the lake traffic. "They have

Many Ships Are Captured or Sunk

First Thirteen Months of War Resulted in 3,000 Vessels Being
Sunk, Captured, Damaged or Detained—Losses Enormous

THE total gross tonnage of all ships captured, detained, sunk or damaged as a result of war operations during the first 13 months of the European war (August 4, 1914, to August 31, 1915), according to an official statement issued by the official press association connected with the British war office, amounted to nearly 4,000,000 tons and numbered close on to 3,000 vessels.

The numbers and tonnages of the vessels of various nationalities involved in war operations, up to end of July, as given by the official press bureau of the British government, were as follows:

	Ships.	Tonnage.
German	521	1,113,298
British	476	980,773
Neutral	418	593,820
Austrian	75	254,282
Allied: French, Russian, Bel- gian	82	128,177
Turkish	56	18,508
	1,628	3,188,858

German Losses

In addition to the list given above, an official list has been published showing 776 vessels (ranging from a tonnage of 5000 to 25,000) whose cargoes or part of them have been detained, in many cases without delaying or seizing the ship itself. The details of German vessels which have been swept off the seas in all parts of the world since the war has been in progress, as given by the official British press association, are as follows:

	Ships.	Tonnage.
Detained in U. K. and over- seas ports	146	315,181
Captured in German colonial ports	21	43,367
Captured and sunk by British ships	8	29,424
Captured by British	75	186,765
Detained in Egyptian ports ..	18	86,038
Detained in Belgian ports ..	89	136,920
Detained in French and Rus- sian ports	95	112,945
Detained in Italian ports ..	36	153,876
Captured and sunk by Allies ..	4	3,822
Captured by Allies	25	37,985
Sunk or damaged by subma- rines, mines or explosions ..	4	6,975
	521	1,113,298

The detailed table of the press association shows that out of 80 detained British vessels in German ports, upward of 60 were lying at the port of Hamburg at the outbreak of the war. Fifty-six British vessels were captured or sunk by five German cruisers, namely, EMDEN, LEIPSIK, KARLSRUHE, KONIGSBERG and DRESDEN, and a number of armed German merchant vessels, all of which have been chased off the high seas or satisfactorily accounted for.

The number of British vessels sunk

by submarines is given as 104, of 304,428 gross tons; 105 trawlers, of 15,087 tons, in addition to 31 vessels of the same class, with a tonnage of 4,229, sunk by mines or explosions. Of the allied vessels 14, of 37,048 tons, were captured and sunk, and 34, of 51,145 tons, were sunk by submarines.

The number of neutral vessels captured by the British was 22, with a tonnage of 49,743. The greatest single case before the British prize court which has been taken up and decided was that of the four vessels, KIM, ALFRED NOBEL, BJORNSTJERNE BJORNSON and FRIDLAND, the cargoes of which have been condemned as conditional contraband of war, the British alleging that the goods, which included 23,000,000 pounds of lard, some rubber shipped as "gum," etc., were actually "destined" for the enemy, although shipped in neutral vessels to a neutral port, Copenhagen.

The official statement also shows that the allies have captured ten neutral vessels of a tonnage of 16,980, including DACIA (American), which was sent forward as a test by the American owners, and was captured and taken into Brest by a French warship. The Germans have also captured and destroyed five neutral vessels, including the American bark WILLIAM P. FRYE.

The Germans, it is further shown, have captured no less than 265 neutral ships having a gross tonnage of 333,065, but with a few exceptions they afterward released these vessels, after the captains in some instances had been made to throw overboard either whole or part of the cargoes. The total number of neutral vessels sunk by German submarines is fixed at 43, with a total tonnage of 59,299. This total included 22 Norwegian, eight Danish, eight Swedish, two Dutch, two Portuguese and one Greek vessel. The losses of neutral vessels sunk by mines or explosion were even larger, numbering 60, including 15 Norwegian, 14 Dutch, 14 Swedish, 11 Danish, three American, one Roumanian, one Persian and one Greek vessel.

Prize Court Operations

Reviewing the operations of the British prize courts during the first year of the war, the official press association statement says that the prize court sat, for the first time since the Crimean war, on Sept. 4, 1914, and from that date up to and including the sitting on Wednes-

day, August 25, 1915, sat for 76 days. No fewer than 700 writs were issued during that period of activity in purely prize cases.

In dealing with the prize court cases, it is pointed out that the gross proceeds of vessels and cargoes sold and freight received on cargoes released from custody amounted to £4,104,804 (about \$20,000,000) to the end of August, from which has to be deducted the sum of £1,161,000 for freight, expenses of realization, etc. In addition, over 5,000 claims in respect of cargoes have been dealt with in the office of the procurator general since the war began. It is also announced that up to the end of August there had been no distribution of prize money to the captors of enemy vessels when goods or vessels have been condemned or sold, the proceeds having been turned over to the consolidated fund.

A list is given of the various kinds of cargo with which the British marshals have had to deal, which included a cargo of 14 alligators, some frogs, snakes, etc., and animals intended for a German Zoo. There have been cargoes of wheat, iron ore, steel rails, provisions, ponies, human hair, musical and surgical instruments, nitrates, buffalo horns, elephant tusks, African and Indian curiosities, machinery, clothing, coffee, tea, sugar, cocoa, wines, lard, rubber, mechanical toys, sausage skins, toothpicks, mouth organs, etc.

War Risk Association Losses

Some figures are now available giving the total losses by ships and cargoes entered in the Liverpool and London War Risks Association from the commencement of the war in Europe down to the close of July, including 12 full months of the war period. These figures show that the English war risk association in the first six months realized losses of tonnage representing 0.30 per cent per month on the values, while in the second six months the losses increased to an average of 0.38 per cent, or a total of 4.08 per cent for the first year.

The average value of each vessel lost which was covered in the war risk association is stated to have been approximately £37,261, about \$185,305, and of the cargoes £43,095, or about \$215,475.

The summary of losses of the British war risk association also shows that

during the first 12 months of the war the value of the cargoes lost was £7,240,096, or about \$37,000,000, out of a total carried amounting to £1,502,000,000, about \$7,510,000,000, or a loss ratio on cargoes of something less than one-half per cent.

Following is given a summary of the Liverpool and London War Risks Association for the first 12 months of the war, the tables showing the summary of losses, from August, 1914, to close of January, 1915, and from February to close of July, 1915, on all vessels entered in the Liverpool and London War Risks Association for insurance under the British state insurance scheme:

Ships				
Numbers entered		4,421		
Values entered		£153,469,068		
Month.	No.	Value.	Per cent total	
Aug., 1914....	8	£426,771	0.18	0.28
Sept.	23	857,595	0.52	0.56
Oct.	18	956,806	0.40	0.62
Nov.	6	85,263	0.14	0.06
Dec.	7	137,797	0.16	0.09
Jan., 1915....	8	268,328	0.18	0.17
Total 1st 6 m.	70	£2,732,560	1.58	1.78
Av. per mth.	11.7	455,426	0.26	0.30
Feb., 1915....	10	182,011	0.23	0.12
Mar.	24	649,950	0.54	0.42
Apr.	10	207,291	0.23	0.14
May	15	1,585,100	0.34	1.03
June	22	494,096	0.50	0.32
July	17	408,888	0.38	0.27
Total 2d 6 mo.	98	£3,527,336	2.22	2.30
Av. per month	16.3	587,889	0.37	0.38
Total for year	168	£6,259,896	3.80	4.08
Av. per month	14	521,658	0.32	0.34

Cargoes				
Est'd value of cargoes.		Per cent of loss on values carried.		
Month.	Carried in British ships.	Lost in British ships.		
Aug., 1914..	£ 88,000,000	£1,015,100	1.15	
Sept.	95,000,000	903,535	0.95	
Oct.	108,000,000	1,768,220	1.64	
Nov.	108,000,000	83,550	0.08	
Dec.	124,000,000	53,190	0.04	
Jan., 1915..	128,000,000	459,664	0.36	
Tot. 1st 6 m.	£651,000,000	£4,283,259	0.66	
Av. per mth.	108,500,000	713,876	0.66	
Feb., 1915..	122,000,000	191,358	0.16	
Mar.	142,000,000	1,084,380	0.76	
Apr.	145,000,000	31,890	0.02	
May	144,000,000	499,244	0.35	
June	148,000,000	674,950	0.46	
July	150,000,000	475,015	0.32	
To. 2d 6 mo.	£851,000,000	£2,956,837	0.35	
Av. per mth.	142,000,000	492,806	0.35	
Total for the year....	£1,502,000,000	£7,240,096	0.48	
Av. per mth.	125,000,000	603,341	0.48	

Recent Losses Heavy

The British shipping losses for the six weeks beginning with August 1, 1915, however, were admittedly much greater than they had been in any similar period since the war began. This was explained to have been partially due to more favorable weather conditions enabling wider scope of operations for enemy vessels. Basing the figures for the six weeks in question, on the average of the previous year's losses shown in the table above, the steamer losses would probably amount to £2,086,616, which would represent 1.35 per cent on the values entered in the shipping insurance club groups. The subjoined table

shows the weekly British ship losses by submarines for the six weeks following the first full year of the war:

Week ending—	*Total arrivals and sailings.	Merchant vessels sunk or captured.
Aug. 4.....	1,453	7 20,850
Aug. 11.....	1,396	2 5,371
Aug. 18.....	1,480	13 22,970
Aug. 25.....	1,869	20 79,727
Sept. 1.....	1,353	4 9,179
Sept. 8.....	1,438	10 37,826

*Embraces oversea steamers of all nationalities to and from U. K. ports over 300 tons net.

Eight Are Indicted

EIGHT men, including officials of the company owning and leasing EASTLAND, the vessel's master and chief engineer, and two government steamboat inspectors, have been indicated under sections 37 and 282 of the United States criminal code by the federal grand jury which was formed to fix responsibility for the disaster which caused the deaths of 812 persons last summer.

Several additional indictments, it is said, will be issued. Those who now confront the necessity of disproving the double charges of conspiracy to defraud the government out of the execution of certain of its steamboat laws and of carelessness in the operation of a vessel, are:

George T. Arnold, president of the St. Joseph-Chicago Steamship company.

William H. Hull, vice president and general manager.

Walter C. Steele, secretary-treasurer. (The foregoing indicted men comprise the board of directors of the company.)

Walter K. Grenebaum, general manager of the Indiana Transportation company. Grenebaum was the charterer of the EASTLAND.

Harry Pederson, captain of the EASTLAND.

Joseph M. Erickson, chief engineer of the EASTLAND.

Charles C. Eckliff, government steamship inspector assigned to boilers.

Robert Reid, government steamship inspector, assigned to hulls.

Piles Cause Sensation

During the progress of proceedings preliminary to active proceedings against those indicted, the Chicago newspapers enjoyed a sensation from the finding of two chunks of piling in a shed on the wharf at which EASTLAND capsized, it being alleged that these pieces had formed the tops of submerged piles which had caused the vessel to careen and turn over.

It was reported that some of those held responsible for the disaster had caused the baulks to be sawed off level with the bottom of the river, in order to use them as evidence in defense. On the other hand, government divers declare that an investigation of the bottom, made soon after the catastrophe, showed that the only submerged piles in the neighborhood of the

wreck were at some distance from her and could not have played any part in the capsizing. United States District Attorney C. F. Clyne refused to attach any importance to the finding of the piles; but E. F. Sweet, assistant secretary of commerce, stated his belief that the piles caused the disaster. Mr. Sweet avowed that as there were only 175 tons of persons aboard, in comparison with 200 tons of coal ballast, it would have been impossible to capsize EASTLAND except by external means. According to the Chicago *Tribune*, the views entertained by Mr. Sweet were derived from an interview he had with W. H. Hull, president of the St. Joseph-Chicago Steamship Co. and one of those indicted.

"A great deal of evidence has been presented to the federal grand jury," said Andrews Allen, a mining engineer and member of the jury, in a recent address, "bearing on various theories of the accident, including the following:

"It was thought that the tug might have pulled the boat over. This theory was shown to be untenable when it was proved that there was only enough strain on the tow line to keep it taut.

Not Resting on Bottom

"It was thought that the boat might have been resting on the bottom, in which case the load coming onto the boat would naturally cause her to careen and possibly to upset. This theory is untenable, first, because the boat first listed to starboard and then to port, and second, because the soundings showed ample depth.

"The story of the piles would have no weight before an audience of engineers, as it would be very plain that these piles would have been driven into the mud or broken off by the weight of the vessel, or that the bottom of the vessel would have been indented by them.

"The license allowed EASTLAND to carry 2,500 people. Approximate calculation on the available passenger space show that, allowing nine square feet per each person, the boat should not have been licensed to carry more than 1,700 or 1,800.

"There were 2,412 tickets turned in by the transportation company. It is evident, however, that there were 25 to 30 per cent more passengers on the boat than reported.

"We had no plans of EASTLAND; but it was very evident that the boat was under ballasted, and its usual behavior in service indicates that its metacentric height was small. The vessel depended for its stability, on water ballast and it was accustomed to run without ballast, or at least with very little ballast.

"On the morning of the accident the ballast tanks were pumped dry. When (Continued on Page 442.)

Modern Barge Models Are Exhibited

American Bridge Co. Makes Interesting Display at San Francisco Exhibition—Details of River and Canal Barges

THE American Bridge Co., one of the pioneers in the construction of shallow draught steel barges for river and canal service, is exhibiting a number of interesting models of craft of this type at the Panama-Pacific International Exposition at San Francisco.

Four complete models made to a scale of 1/2-inch to the foot were prepared at the Ambridge plant of the Bridge company. They are suitably mounted on specially designed tables and as shown in the accompanying illustration, photographs are also presented showing the construction of barges of all types. The American Bridge Co.'s display constitutes a portion of the comprehensive exhibit of the United States Steel Corporation in the Palace of Mines and Metallurgy. A grand prize has been awarded the Bridge company for the excellence of its exhibit with special mention of towing and self-propelled steel barges for coal in bulk, general merchandise and bulk products.

Decked Sand Barge

The decked sand barge shown at the left of the illustration is a replica of a type used extensively on the Mississippi river at Memphis and in St. Louis by the Union Sand & Material Co. This barge has a capacity

of 650 net tons on a draught of 7 feet. Its dimensions are 130 x 30 x 7 1/2 feet. Heavy clamshell buckets are used for unloading the cargo, which necessitates heavy deck framing. The cargo retainer is constructed of wood, held in place with steel brackets.

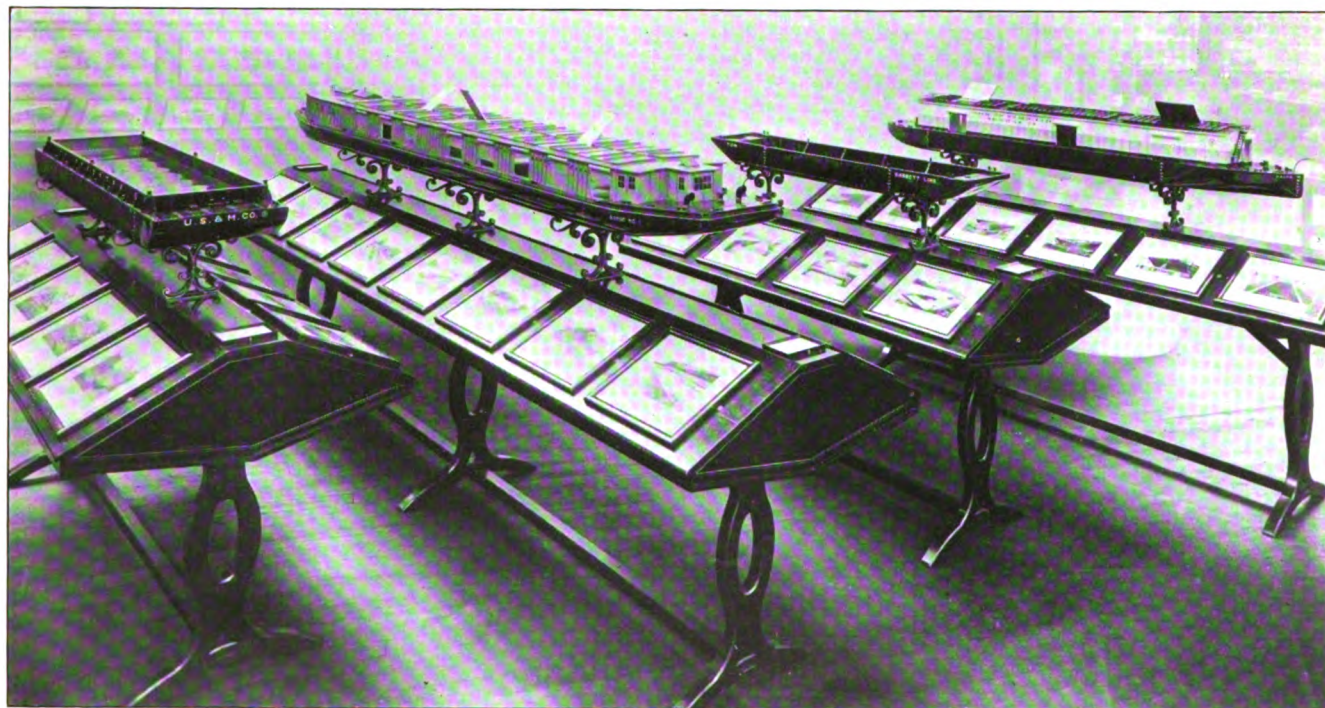
Adjoining is a model of a self-propelled barge designed for use on the Hudson river and New York state barge canal, although it could be used elsewhere. The low bridges on the barge canal provide for a maximum clearance of 15 1/2 feet, so that to secure a maximum capacity this hull has been designed with a depressed deck, 3 feet below the main deck, in the area covered by the cargo house. The dimensions of the hull are 240 x 36 x 8 1/2 feet, and on a draught of 6 1/2 feet the capacity of the barge is 600 gross tons. The cargo space is ample to carry this tonnage of general freight. Provision has been made to load and unload the cargo through hinged hatches and rolling lift doors. Ample provision also has been made for the accommodation of the crew, forward of the cargo house. The engines and other operating machinery are placed aft. On account of the long shallow hull, advantage has been taken of the sides of the cargo house to get greater depth for the effective fram-

ing of the barge, the framing being arranged on the inside of the side plating so as to clear the doors. The framing of the hull is designed to distribute the loads to the deep girders. A patent is pending for this type of construction.

Barge With Corrugated Bottom

Third from the left is shown an open barge, having a corrugated bottom, for which a patent has been applied; several barges of this type are in use by the Barrett Line of Cincinnati. This type is the result of considerable study to develop an open barge for carrying coal, sand, gravel and such other materials usually unloaded with clamshell buckets, without resorting to an inner bottom. Aside from reducing the first cost, the capacity has been increased and the cargo can be stowed below the gunwales and does not interfere with the lines when the barges are towed in fleets, which is usual.

The corrugations are 3 inches deep, flat, not sinuous and are 16 inches center to center; they are continuous between end bulkheads. At intervals of 17 1/2 feet there are watertight inverted V-transverses, having a spread of 7 feet on the bottom of the barge, leaving spaces 10 1/2 feet long by the full width of the barge for the bucket



MODELS OF BARGES EXHIBITED AT THE SAN FRANCISCO EXPOSITION

to work in. Access may be had to the interior of the compartments so formed by watertight manholes. Provision for draining the barge is made by placing a plate over a corrugation at each side of the barge in the way of the V-transverses so as to form water courses leading to pump boxes placed at each of the four corners of the hull.

The inclined end bulkheads and V-transverses form hoppers which reduce the surface to be cleaned up when unloading to about one-half of the bottom area of the barge. Brackets extending from the ridges of the transverses to the gunwales guide the operator in unloading.

Missouri River Barge

The model to the extreme right is a reproduction of one of the barges built for the Kansas City & Missouri River Navigation Co., Kansas City, Mo., for the transportation of general freight between Kansas City and St. Louis. The hull is 156 feet long, 30 feet beam and 8 feet deep. It has a rather full modeled bow and a basket stern. Four transverse bulkheads divide the hull into five watertight compartments, and partitions with fire doors are provided. Between end bulkheads the main deck is dropped 5 feet to form an inner bottom, the inner bottom and main deck being connected by inner side plates, thus giving the barges a double skin between end bulkheads. The cargo space is 24 feet wide, 15½ feet high and 120 feet long. Access is had to each compartment by hatches in the upper deck and rolling lift doors in each side of the cargo house. The cargo carrying capacity is 600 net tons on a draught of 6 feet.

The barge yard of the American Bridge Co. is at the Ambridge plant, 16 miles west of Pittsburgh on the Ohio river. This department is equipped with modern machinery. Spacing punches are provided for the accurate alignment of rivet holes. Many barges have been built for the United States government for use in the improvement of the Ohio and Mississippi rivers and the commercial use barges for all purposes have been constructed. Hulls for tow boats, dredges, packets, pile drivers and car floats have also been built. A special corps of engineers design the barges and boats, most of this work being done in accordance with the company's plans.

The Japanese government has granted permission to raise freight rates on American cotton from 40 cents per picul (30 cents per 100 pounds) to 50 cents per picul (37½ cents per 100 pounds) to the three mail steamship companies.

Soo Commerce Grows

During September 10,979,451 tons of freight passed through the canals at Sault Ste. Marie, making the record month of the present season. The movement to Oct. 1 totaled 48,383,603 tons, while the movement for the corresponding period in 1914 amounted to 43,033,675. Of the 10,979,451 tons of freight carried during September, 1,389,346 passed through the Canadian canal and 9,590,105 tons through the American canal. Following is the summary:

	EAST BOUND	
	To Oct. 1, 1914	To Oct. 1, 1915
Copper, net tons.....	47,237	95,373
Grain, other than wheat, bushels	37,945,528	25,504,353
Building stone, net tons.....		
Flour, barrels	6,725,452	5,091,107
Iron ore, net tons.....	25,923,002	33,761,752
Pig iron, net tons.....	13,713	6,914
Lumber, M. ft. B. M.....	348,248	353,068
Wheat, bushels	81,645,763	66,538,726
Unclassified freight, net tons	201,114	211,371
Passengers, number	27,546	21,725

	WEST BOUND	
	To Oct. 1, 1914	To Oct. 1, 1915
Coal, anthracite, net tons	1,589,501	1,448,734
Coal, bituminous, net tons	9,714,223	8,106,063
Flour, barrels	662	100
Grain, bushels		31,250
Manufactured iron, net tons	177,613	134,137
Iron ore, net tons		
Salt, barrels	565,736	481,170
Unclassified freight, net tons	799,303	882,375
Passengers, number	30,019	23,959

SUMMARY OF TOTAL MOVEMENT		
East bound, net tons.....	30,668,547	37,739,738
West bound, net tons.....	12,365,128	10,643,865
Total	43,033,675	48,383,603
Vessel passages	14,556	14,907
Net registered tonnage.....	33,001,748	38,578,998

Eight Are Indicted

(Concluded from Page 420.)

the boat listed to starboard they started to fill the port tanks. When it began to list to port, they began to pump out the port tanks instead of filling the starboard tanks too; in fact, this was attempted only at the last moment. The ballast tanks were, therefore, only partially filled and the water could surge with every movement of the boat. The instability was doubtless increased instead of decreased thereby. The single ballast tank system is very defective and when the boat began to get away from the crew they had no means of righting it."

The Oceanic Steamship Co., San Francisco, has completed arrangements with the United States postoffice department to place the Sierra, formerly on the local Honolulu run, in the Australian service in conjunction with her sister vessels, SONOMA and VENTURA. Instead of sailings every 28 days, the Oceanic company's sailings to Australia, via Honolulu and Samoa, both outward and inward voyages, will be every three weeks, beginning Oct. 26.

Death Takes Gottheil

Paul Gottheil, for many years a member of the shipping firm of Funch, Edye & Co., New York, died recently at his home on Long Island. Mr. Gottheil was born in Germany 59 years ago. He came to New York and joined the staff of Funch, Edye & Co. in 1873, after having been two years with a large exporting house in Manchester, where he secured his first business experience, after schooling in Berlin. He subsequently became bookkeeper and chartering clerk in the shipping office.

In 1888, Mr. Gottheil, together with Frederick Fortmann, who died in 1900, was admitted to partnership in the firm of Funch, Edye & Co. The firm of Funch, Edye & Co. is said to represent more regular lines of steamships than any other single firm in North America, their principal agency being that for the Holland-American Line. Mr. Gottheil was largely the director of the business. He was also president of the United States Shipping Co., formed in 1896. He was always active in the shipping life of New York and has served as chairman of many committees dealing with steamship affairs. Mr. Gottheil was a member of the Lawyers' Club and of the New York Produce and Consolidated exchanges. He was also for a time director of the Maritime Association of the port of New York, although he has not been active in this connection for some time past.

Book Review

North Pacific Ports, compiled and published by the Terminal Publishing Co., Seattle; second edition; 421 pages, cloth; furnished by *The Marine Review* for \$2.50 net.

A complete and handy compendium of useful data for those interested in coastwise or foreign commerce with any of the American or Canadian Pacific coast ports is contained in this volume, the first edition of which appeared last year. In the absence of Welford Beaton, its founder, his colleague, A. B. St. John, has continued the work and has augmented the original volume considerably. Voluminous statistics as to anchorages, wharves, lights, warehouse capacities, customs and navigation requirements, rates, bunkering, laws of commerce, exchange, steamship lines, railroad facilities, weather, and other important facts are presented in clear and accessible fashion. The book should prove of especial value at the present time when so many eastern operators are inaugurating or extending steamship service to Pacific coast ports.

Cargo Stowage on the Pacific Coast

Wide Variety of Package Freight, Necessity for Snug Loading, and Other Factors Present Contrast to Cargo Handling Methods on Lakes

By James Griffiths

THE volume of traffic on the Great Lakes, and the fact that the year's business has to be transacted in eight months, has given inventive genius an opportunity to provide special facilities for loading and discharging freight vessels. This is only warranted by the fact that the tonnage handled justifies the great expense of special unloading devices, one form of which has reached its highest development in Great Lakes steamers such as W. F. WHITE, described in the October issue of *The Marine Review*. For ocean business these steamers would be the poorest sort of an investment. I do not know of any volume of cargo that would move where such a plant could be used. Again, the self-unloader is absolutely restricted to limited drafts and could not carry other than coarse bulk freight.

Let us take, as an illustration of the differences between ocean and Great Lakes trade, the coal movement on the Pacific coast. The development of cheap oil fuel in California has largely eliminated coal as a fuel for steam plants, and the coal now required in California is largely for domestic use or for coaling foreign vessels. In the old days, sailing ships out of Seattle discharged into hoppers built on the dock at San Francisco. From these carts or wagons were loaded to distribute the coal to consumers. This method was superseded by the employment of large steamers, which discharged into bunkers at the Golden Gate metropolis. The volume of the coal business from Seattle to San Francisco is not

now sufficient to employ continuously a steamer of sufficient size to give an economical freight rate. Consequently such a vessel is obliged to find additional business of a varied nature, such as carrying 100-foot piles to Panama during the summer season, or taking cargoes of lumber from scantling to pieces 2 feet square and 100 feet long to the west coast of South America, to China, or to Australia. It may readily

Is An Authority

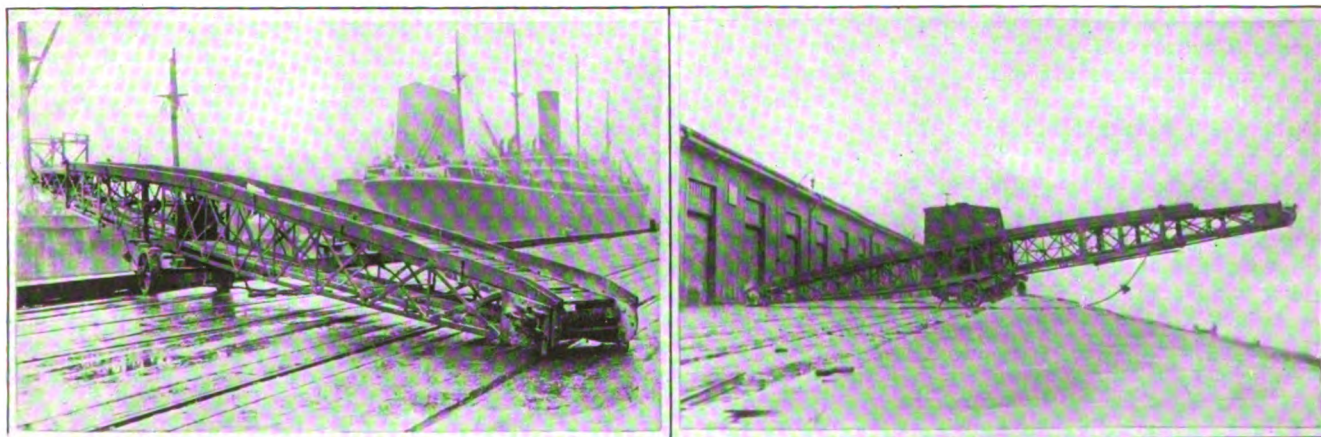
This article was written at the request of The Marine Review, by Captain James Griffiths, one of the Pacific Coast's best-known shipping men. Captain Griffiths speaks with authority, having had experience in maritime commerce in nearly every corner of the world, and having for years had charge of the loading and discharging of oriental cargoes at Seattle. He has also been largely engaged in coastwise freighting and is familiar with all phases of the situation which he describes.

the uncertainty of copper mining operations, is such that they usually erect a bunker of not more than 1,000 tons capacity. A large steamer is obliged to make several points along the coast to secure a full load of copper ore. It has been found unprofitable to keep regular freighters employed in this business; consequently the steamship companies move the ore in their passenger ships, such as ALAMEDA, MARIPOSA, NORTH-WESTERN, etc. These vessels carry from 500 to 1,000 tons of ore in addition to their regular complements. Owing to their large passenger accommodations, the ore has to be loaded down a hatch not to exceed 10 feet square, and when it is finally in the lower hold, it must be trimmed back from 10 to 50 feet, in order to load the vessel. In discharging the ore at the Tacoma smelter, the only means available is a small tub of about 1½ tons capacity. This is lowered down the hatch, and when loaded is rolled out to a position either under the ship's derrick or under a boom operated from the dock.

be seen that a ship such as the self-unloading lake vessels would not justify the expenditure involved in her construction, in such work as this.

Another instance of the case in point is furnished by the copper ore business of Alaska. The conditions of traffic are such that not a mine in Alaska today can furnish a full cargo for a 3,000-ton steamer. The mines lack the bunkering capacity at their loading plants, to take care of such an amount. The cost of construction, together with

The question of unloading oriental cargoes is also of interest in this connection. Many kinds of mechanical appliances have been brought forward to perform this work. Those actively engaged in the stevedoring business at Seattle and other Puget sound cities are frequently approached by persons representing conveyors and elevating machinery. Some of these agents describe their methods of handling beer bottles at a St. Louis brewery, bread at a Chicago bakery, wheat at a Minneapolis elevator—any and all kinds of



PORTABLE ELECTRIC ELEVATOR CONVEYOR USED ON GREAT NORTHERN DOCKS, SEATTLE, FOR LOADING WHEAT AND FLOUR ON TRANSPACIFIC LINERS

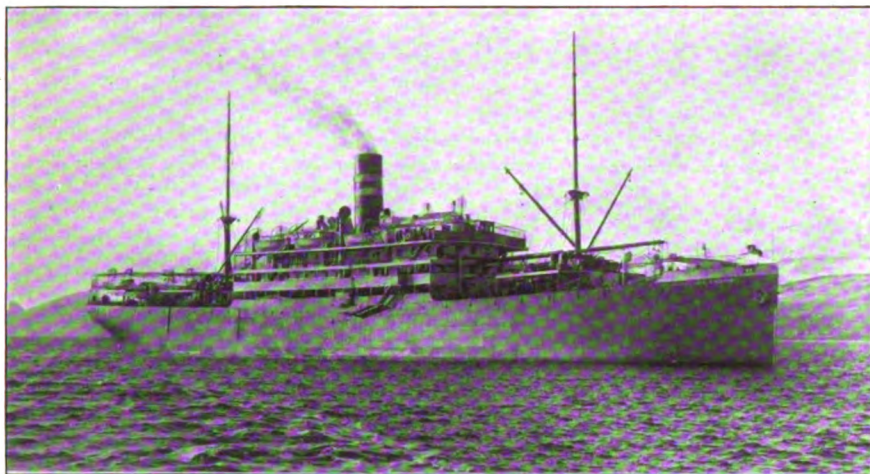
materials. Being familiar with such complicated devices as special elevators for discharging bananas, they cannot comprehend why such mechanical ingenuity could not adapt an appliance to the work of discharging the oriental cargoes brought to North Pacific ports. They regard the Puget sound stevedore as far behind the times when he endeavors to tell them that their schemes are impracticable, and greet his statements with an incredulous smile. Usually they come around when no ship is in. On one occasion I challenged some of these gentry to try out their devices on a typical oriental cargo. They accepted gratefully; and when the ship arrived and they looked at the mess which had to be handled, they disappeared from the scene of action with great celerity.

The usual cargo ship from Japan, loaded to the hatches, presents no small problem to those whose duty it is to transfer her costly and varied assort-

ment of freight to the docks. The contents will start with bales of silk. These are 3 feet long, 2 feet wide, and 15 inches deep, weighing about 140 pounds apiece. They are stowed in the ship's silk room, a compartment specially lined to exclude rats and moisture, each bale of silk being worth about \$500. The silk room is usually fitted with doors which just permit a man to squeeze in sideways. Thus far the mere sight of these doors has effectually dampened the enthusiasm of the promoter of unloading machinery who thinks silk can be handled better mechanically than by hand. Outside the silk room, in the 'tween decks of the vessel, may be found anything from bamboo furniture to 20-foot bamboo rods in bundles containing 20 rods; chests of tea, bags of peanuts, Chinese kaoliang, firecrackers in

frail cases, Chinese eggs which have to be handled as though they were gun-cotton, and other commodities, all compactly stowed. The lower hold is similarly loaded.

The vessel's cargo usually includes 4,000 or 5,000 rolls of matting, 2,000 to 5,000 chests of tea, and a large quantity of bamboo furniture, such as the familiar 6-foot bamboo chairs, not crated but merely covered with matting. The bottom of the hold contains bales of Calcutta gunnies, each of which weighs from 1,200 to 1,800 pounds. In an hour or so after the men have started working on this conglomeration of merchandise, the average promoter of mechanical discharging appliances unostentatiously slips away; and we never see the same man the second time. We are still using the same old devices and expect to continue their use, unless special ships are built for special cargoes, which is obviously quite impracticable at present. As I have said, this is an age of



HIGHLAND LADDIE, A TYPICAL OCEAN FREIGHTER, SHOWING NUMEROUS DERRICKS FORE AND AFT. THE FOREST OF DERRICK BOOMS ON A BIG SALT WATER SHIP MIGHT BE CONSIDERED AS A PARALLEL TO THE SELF-UNLOADING DEVICES SEEN ON THE GREAT LAKES

specialization. I have been on the Lakes, the Atlantic seaboard, and in European ports, and feel justified in the assertion that Puget sound is no whit behind any maritime district in the ability to handle ships with dispatch, all conditions being borne in mind. For the loading of wheat and flour on Puget sound, small portable elevator conveyors from 35 to 60 feet long, as shown in the accompanying illustration, are used. These unloaders have a capacity of 50 to 70 tons of wheat per hour for each machine. Their capacity could, of course, be increased; but the cargo they deliver has to be stowed snugly in the vessel; and it is impossible to get enough men around the delivery spout to take a larger amount of wheat or flour, which in sea-going vessels, must be compactly and securely stowed.

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New Floating Dock

The second of two new floating dry docks for the Swedish Port of Goteborg has been launched. This dock, built and owned by the Aktiebolag Eriksbergs Verkstads Flytdocker, is thus described in the *Goteborgs Handelsoch Sjöfartstidning* for April 17, 1915: "The new dock is of the so-called U-type; that is, with two walls between which the steamers are docked. Its length is 226.38 feet, greatest width 62.34 feet, and depth from the upper deck to the bottom 26.11 feet. It is intended for lifting steamers up to 1,400 tons displacement.

"The pumping for lifting and sinking the dock is done by two centrifugal pumps driven by electricity, each furnishing 20 tons of water per minute and calculated to free the dock in 50 minutes. To carry off the steamers by the in-and-out docking there are rolling fenders placed in all four corners of the inner side of the walls. For shoring the steamers after docking there are on each side six large mechanical shores managed by cog gearings. Two electric warping capstans are mounted for warping the steamers, one on each of the walls, and driven by 15-horsepower motors. On one of the walls is also a 3-ton swinging electric crane. Drilling machines, etc., are driven by electricity taken from Trollhattan through a transforming station specially made for the electrical arrangements.

"The dock is moored in the direction of the length of the river and at right angles to the bridge of the factory, about 300 feet from the shore. A basin 29.53 feet deep has been dredged for the dock, which is anchored by large mooring chains."

Jap Yards Busy

No less than 43 ships, ranging from 7,300 to 1,100 tons, are now under construction in Japanese ship yards, which are operating day and night, according to United States Consul General George H. Scidmore, Yokohama. At the Mitsu Bishi yard in Nagasaki, four ships with a tonnage of 7,300 each and two of 3,700 tons each, are under construction. At the Kobe yards of the same company, one 1,800-ton and two 5,300-ton vessels are on the ways. At Kobe, the Kawasaki yards are building one 1,700-ton, one 3,000-ton, two 4,000-ton and three 7,300-ton boats.

Other important orders being executed at the different ship yards are: Osaka Iron Foundry, Osaka, six 7,300-ton, one 5,000-ton, twelve 3,200-ton and one 1,100-ton craft; Uraga Dockyard Co., Uraga, four 2,200-ton vessels.

Suez Traffic Shows Falling Off

War Operations and Opening of Panama Canal Cut Down
Trade Through Eastern Ditch — Many Troops Carried

IN A report issued recently in England are given the returns of the navigation through the Suez canal for the year 1914 as compared with those of the two previous years, 1912 and 1913. The net tonnage for the past year shows a decrease of 624,389 tons, as compared with that of 1913, and a decrease of 865,625 tons, as compared with that of 1912. The reduction of the transit dues to 6.25 francs per ton from Jan. 1, 1913, together with the reduction on tonnage, had the effect of reducing the gross receipts, which amounted in 1914 to 122,248,853 francs, as compared with 126,650,934 francs in 1913 and 136,423,831 francs in 1912. During the first seven months of 1914 the traffic through the canal was in excess of that for the same period of 1913. The receipts, however, fell after the outbreak of war, but the loss occasioned by the diminution of the mercantile traffic was partly compensated by an increased movement of military transports. The number of vessels which passed through the canal was 5,273 in 1912, 5,085 in 1913 and 4,802 in 1914, of which 3,335 in 1912, 2,951 in 1913 and 3,078 in 1914 carried the British flag. There has been an increase of 857,794 tons last year, as compared with 1913 in the tonnage of British vessels, which amounted to 12,847,621 tons in 1912, 12,052,484 tons in 1913 and 12,910,278 tons in 1914. During the same period the tonnage of German vessels has decreased from 3,025,415 tons in 1912 and 3,352,287 tons in 1913 to 2,118,946 tons in 1914.

British Tonnage

The percentage of British vessels and their net tonnage in 1914 was 54.1 and 66.5 respectively, as compared with 58 and 60.2 in 1913, and 62.1 and 63.4 in 1912. The percentage of German vessels and their net tonnage was 10 and 10.9 respectively, as compared with 15.3 and 16.7 in 1913, and 13 and 14.9 in 1912, while the percentage of net tonnage of the other maritime nations using the canal in 1914 remained practically stationary, as compared with the preceding year. Of 3,314 merchant vessels and vessels in ballast, of a net tonnage of 12,907,216 tons, passing through the canal, 2,372 ships of a net tonnage of 9,516,439 tons, were British, being 71 per cent of the number and 73.7 per cent of the tonnage; 299, or 9 per cent were German vessels whose tonnage was 9.7 per cent of the whole; Holland,

France, Austria-Hungary, Russia, Norway, Sweden, Denmark and Italy combined furnishing a total of 20 per cent of the vessels and 16.5 per cent of the tonnage of the carrying trade to the east through the Suez canal.

Ten Years' Traffic

In the ten years 1891-1900 the annual net tonnage ranged from 8,638,777 tons to 9,738,152 tons and the transit receipts from 83,422,101 francs to 90,623,608 francs. The average of the net tonnage was 8,588,947 tons and of the transit receipts 80,006,013 francs; while in 1914 the net tonnage amounted to 19,409,495 tons and the transit receipts to 122,248,853 francs. The mean net tonnage per vessel, which in 1881 was only 1,517 tons, rose from 2,067 tons in 1891 to 2,926 tons in 1901 and 3,608 tons in 1911, and to 4,042 tons in 1914. Fifty-seven steamers, exceeding 150 metres (492 feet) in length, or more than 18 metres (59 feet) in breadth, with a draught of over 8 metres (26 feet 3 inches), passed through the canal in 1914. The mean duration of passage for all vessels navigating the canal was 16 hours 11 minutes in 1914, while the percentage of vessels navigating by night as well as by day amounted to 95.5 per cent in 1914, as compared with 96.9 per cent in 1913. The percentage of vessels drawing less than 27 feet (8.23 metres) was 96 in 1914, as compared with 96 in 1913 and 97 in 1912, while that of vessels drawing more than 27 feet was four in 1914, as compared with four in 1913 and three in 1912. Since Jan. 21, 1915, the maximum draught allowed for vessels passing through the canal has been raised to 9.14 metres, or 30 feet. During 1914 363 vessels passed through the canal for the first time, 25 of which were warships and 114 belonging to shipping companies whose vessels regularly use the canal, and who furnished over 90,000 tons to the traffic of the canal.

The number of troops carried through the canal during last year amounted to 228,720, as against 88,748 in 1913, being an increase of 139,972. There was an increase of 140,228 British, 5,488 Italian and 23 French, against a decrease of 3,581 Turkish, 1,355 Dutch, 560 Japanese, 259 German and 12 Spanish troops, as compared with 1913. The number of civilian passengers amounted to 155,183 in 1914, as against 169,641 in the preceding year, being a decrease of 14,458;

while the number of pilgrims, emigrants and convicts was 7,869 in 1914, as compared with 23,846 in 1913, or a decrease of 15,977. In the year 1870, 26,758 civil and military passengers were carried through the canal; in 1880 the number rose to 98,909, in 1890 to 161,352, in 1900 to 202,203, and in 1914 to 391,773, as against 282,235 in 1913.

New Line to Spain

The Caribbean & Southern Steamship Co., Inc., New York, has announced another extension in its scope of activities. The company will maintain a regular freight service from New York to Barcelona, Spain, direct, and will likewise serve other Spanish Mediterranean ports when necessary. The first steamer of the new line sailing to Spain was the chartered steamship BYGBO, which sailed from New York about Oct. 12 for Barcelona. The company recently established steamer services from New York to Archangel and New York to Gothenburg.

News advances received from Gothenburg, Sweden, state that it is planned to start a passenger line of steamers between New York and that port, and while it is not an opportune time to build or buy ships the promoters of the venture are appealing to Swedish pride to uphold the plan, which calls for a capital of ten million kronen, or about \$2,500,000.

Canal Helps New York

One of the unlooked for effects of the construction of the Panama canal is that it is increasing the importance of New York city as a shipping point. Statistics for eight months of the commercial use of the canal show that 90 per cent of the value of the freight traffic from Atlantic and Gulf ports to Pacific coast ports has been shipped from New York. Two-thirds of the vessels, sailing for western ports through the canal cleared from New York. Its accessibility as a railroad center is said to be one reason for its ascendancy over other ports. While most of the merchandise destined for shipment through the canal originates within 300 miles of the city, freight has been shipped to New York from points as far west as Iowa and then sent by water to San Francisco.

On the Coasts, Lakes and Rivers

What's Doing and Who's Doing It

Shipping News From Boston

By George S. Hudson

THE development of the eastern section of Boston harbor will be started shortly. Piers will be built by filling in existing channels and flats and taking over part of Governor's Island. The channels are now closed with dredged material which, later, will be pumped on the extensive areas lying between East Boston and Winthrop, thus reclaiming territory for industrial and other purposes. These flats, bare at low water, are owned jointly by the nation, state and city. The improvement is in charge of the directors of the port. The piers, 1,600 feet in length, will begin adjacent to the Boston & Albany terminal, straightening the harbor line and, at the same time, removing the present anchorage area for loaded vessels.

After six years' service the Boston-Havana line has been discontinued. E. H. Downing, traffic manager, states the shortage of ships and the high prices asked for those available, are responsible. In addition, the business at the port of Boston has declined. The war has cut off shipments of hay and grain from Canada through Boston to Cuba, and there have been other losses in traffic, charged partly to the war and partly to business depression. The line was established to furnish direct communication with Cuba. Previous to its establishment, freight bound to Cuba was subject to railroad charges to New York and transfer charges and delays at that port, which the direct line eliminated.

The 105-foot tug ORION, recently sold by the Boston Towboat Co. to the Ryan Towing Co., Port Arthur, Tex., is receiving oil-burning equipment at New York. Capt. Breckenridge of ORION has been given command of the Boston tug CONFIDENCE.

Ten thousand bales of wool arrived at Boston recently from Australia in the American steamship COLUSA, Captain Lobez.

The largest shipment of sugar, 7,800 tons, ever entered at the port of Boston, arrived from Hilo the other day in the American-Hawaiian steamship PANAMA. It was also the first direct cargo of sugar ever received from the Hawaiian Islands.

A revival of grain shipments from Boston to Europe is expected shortly. A shipment of 80,000 bushels for London was taken out the latter part of September in CAMBRIAN, the rate being approximately 50 cents per bushel. Bookings of cereal for England during

the next few months average about 500,000 bushels per week.

The Boston-owned barkentine KREMLIN has been chartered to load 700,000 feet of lumber at Boston for River Plate at \$21 per 1,000 feet. She has arrived from New York. KREMLIN takes the cargo intended for the barkentine MABEL I. MEYERS, sunk in collision with the battleship NEBRASKA, July 31.

A cargo of chalk, the first ever brought to Boston from Denmark, arrived recently in the Danish steamship H. V. FISKE, Captain Neilsen.

The steamer CITY OF ROCKLAND, Captain Linscott, of the Eastern Steamship Corporation's fleet, has finished her season on the Kennebec route and is laid up at the Atlantic Works, East Boston.

The Boston lightship was damaged recently by being rammed by the Merchants & Miners Transportation Co.'s steamer QUANTICO, from Boston for Philadelphia. The steamer was able to proceed to her destination but the beacon, with a 10-foot square rent in her

starboard quarter, had to be hauled off for repairs. QUANTICO is commanded by Captain Thacher, one of the most capable masters in the coastwise service.

The American sailing ship RHINE, Captain Bray, is now at Shooter's Island and will be reclassified. She is 28 years old, having been designed and built at Glasgow for coolie trade between Calcutta and Demerara. She is of iron construction. She was purchased by American interests about eight years ago and was transferred from British to American registry last summer. The ship has carried many millions of feet of lumber from Boston to River Plate ports.

About 1,000 bales of flax and tow, damaged by fire in No. 2 hold of the American steamer J. W. FORDNEY, Captain Smith, while bound from Archangel for this country, has been sold at public auction after having been discharged at Boston. Estimated loss is \$35,000. FORDNEY was formerly the British steamship BEAUMONT and was granted American registry after receiving extensive repairs, her hailing port being Cleveland.

Along Puget Sound Shores

By F. K. Haskell

PUGET SOUND'S coastwise trade with Alaska and California is said to be the only trade in the world, in which there has been no advance in freight and passenger rates since the outbreak of the war. In some cases rates are even less than when the war began. Manager Richard J. Ringwood, of the Admiral line, declares that for the service given, Alaska now enjoys the lowest rates in the United States per ton per mile, and in proportion to population and tonnage it has double the steamship service of any other country in the world. Keen competition has helped to keep down rates, despite the fact that in the last year the cost of operation, supplies, insurance and labor, aloft and ashore, has increased.

Frank Waterhouse & Co., Inc., has added another vessel to its fleet of transpacific freighters under a four-months charter, obtaining the Japanese steamship KENKON MARU III, for early October delivery in Japan. The company will bring the steamship to Seattle with a full cargo of general oriental

freight. She will then load to capacity for Vladivostok.

Considerable work is in prospect at the Puget sound navy yard, Bremerton, says Capt. Robert E. Coontz, commandant of the navy yard. The supply ship SUPPLY, stationed at Guam, Ladrone islands, is on her way to the yard for extensive overhauling. The cruiser PRINCETON, which struck a Samoan reef several months ago, is on her way from Honolulu, the big hole in her bottom having been temporarily filled with cement. The gunboat VICKSBURG, training ship of the Seattle naval militia, will be thoroughly overhauled. The armored cruiser COLORADO is due for the dry dock. It is said that a submarine is to be built on the new ways, which will be completed before November 1.

The Port Blakeley, Wash., Transportation Co. has chartered the schooner WILBERT L. SMITH to the American Trading Co. at 115 shillings for a voyage from Grays harbor to Freemantle, Australia, with a cargo of lumber.

Prior to the war 60 shillings would have been considered a profitable rate. The rate of exchange in the new charter is guaranteed at \$4.80, and is equivalent to \$27.50 per thousand board feet. WILBERT L. SMITH will take approximately, 1,000,000 feet of lumber. The order is confirmed by the Port Blakeley Mill Co., parent corporation of the Transportation Co.

Carrying approximately 1,250,000 feet of lumber in her holds and on deck, the British freighter GRAHAMLAND, Capt. A. E. Wetherill, recently sailed from Victoria, B. C., for the United Kingdom. This vessel was chartered from the British admiralty by the British Columbia provincial forestry department, and was subsequently re-let to the Cameron Lumber Co. She was formerly the Dutch steamer JOSEPHENA and was captured by the British squadron at the battle of the Falkland islands, when discovered to be acting as a collier to the German fleet.

Owing to new shipbuilding contracts, the Seattle Construction & Dry Dock Co. will increase its force of workmen by 1,500 mechanics and other skilled labor within the next 30 days.

The recent arrival on Puget sound of the W. R. Grace & Co. steamer COLUMBIA with a cargo of 1,850 tons of copper ore, inaugurated the first direct freight and passenger steamship service between the Pacific northwest and Brazil. It is announced that the line will be permanent if enough freight is forthcoming.

The Chilberg Agency, of Seattle, has been appointed North Pacific coast general passenger agent for the Russian-American line, otherwise known as the Russian East Asiatic Steamship Co., Ltd., for Washington, Oregon, Alaska and British Columbia. This is the only steamship line operating direct between the United States and Russia.

For service in the freight and ore trade between Alaska and Puget sound, the Alaska Steamship Co. has purchased two steamers on the Atlantic coast and will bring them out to the Pacific coast by way of the Panama canal. These are BURLINGTON and BENNINGTON, which have been in operation on the Great Lakes as ore carriers. The purchase price is said to have been \$400,000.

The C. Henry Smith company will add two more vessels to its service from Tacoma and San Francisco to the west coast of South America. BAJA CALIFORNIA and SINALOA are unable to care for the present freight offerings.

General Manager Kafuku of the Osaka Shosen Kaisha line, replying to a cablegram concerning alleged mobilization of space by favored shippers, writes from Osaka saying that the eight steamers of the line are scarcely able to care for the traffic offered, to say nothing of the congestion that will follow the withdrawal from competition of the Pacific Mail line. The company would charter steamers if any were available, and is adding a 10,000-ton liner to its trans-Pacific fleet. It has been operating a line of steamers between Tacoma and the Orient for several years and has recently added the new liners HAWAII MARU and MANILA MARU to the service.

Around the Golden Gate

By A. A. Willoughby

INGENIEUR SACHAROW, a bucket type dredger constructed in Holland for the Russian government's dredging operations in the harbor at Vladivostok, recently visited San Francisco on her way north. She is the smallest of three dredges designed for this work. Capt. E. C. Metus, of SACHAROW, has been waiting for the arrival of a Dutch tug from the orient.

The old whaler BOWHEAD, one of the last of the great whaling fleet that formerly made San Francisco its home port, has been sold to a moving picture corporation near Los Angeles, and is to be blown up in the production of a sensational film. BOWHEAD was launched from Christiania in 1871, under the Norwegian flag and was brought to San Francisco in 1898 by Captain John Cook. Her last trip was made six years ago, to the Arctic seas. While cruising for whales she picked up the crew of the wrecked ship WILLIAM DAVIS. Several of the old whaling fleet are now lying in the mud banks along the Oakland estuary.

On her last trip, the Pacific Mail steamer PERSIA brought into San Francisco one of the most varied cargoes that has ever been unloaded here. It included monkeys, fish, parrots and various other kinds of birds, 1,712 cases of canned crab, 224 cases of muriate of potash, 438 tons of shelled peanuts, coffee, camphor, indigo, graphite, camels' wool, tiger and leopard skins, choyo, miso, tea, beans, peas, raw silk, rice, tin, sugar, gunnies, Chinese and Japanese wines, straw and hemp braid and curios.

Several ships arrived in port the past month in ballast from Newcastle, Australia, to take advantage of the high charter rates which have been prevailing here. Shipping conditions at Newcastle are reported in a more or less demoralized condition, following the action of the Australian government in hoarding the coal supply for the uses of the British government on account of the Welsh troubles.

The Oceanic line has commenced a 21-day service to Sydney from San Francisco, using SIERRA, SONOMA and VENTURA. This increased service follows the awarding of a mail carrying contract to the company.

Local shipping interests have purchased the sunken German steamer WALKURE and an expedition to raise the vessel has left port. WALKURE was lying at anchor in the harbor of Papeete when the German Pacific fleet shelled the town, and a shell striking below her water line, she sank on a coral reef and later slid off into 45 feet of water. The big freighter had been bound for Australia when she was captured by a French gunboat and taken to Papeete. Although submerged for nearly a year she is said to be in good condition. Following her raising, she is to be brought to San Francisco and put in service under the American flag.

San Francisco shipping circles realize that the oriental export trade is going

to be seriously threatened by the withdrawal of the Pacific Mail Steamship Co., and strenuous efforts are being made by the local chamber of commerce to persuade other lines to enter the field. A Dutch firm, the Java-China-Japan line, will establish monthly service from San Francisco to Java via Manila and Hong Kong. This service is contingent on arrangements being made with the transcontinental railroads, which state they will protect and issue through bills of lading and will make proportional rates in both directions sufficiently low to secure the business. The service starts from Batavia, Java, Dec. 15, the first vessel arriving in San Francisco in February.

The first freighter to be launched for many months at the Union Iron Works was christened ANNETTE ROLPH in honor of the daughter of Mayor James Rolph Jr., a member of the firm of Hind, Rolph & Co., for whom the vessel was built. The elapsed time between the laying of the keel and the launching was 2½ months, said to be a notable record for vessels of this size. The boat is 400 feet long, beam 36 feet, moulded depth 56 feet, draft 32 feet, and has 2,600-horsepower engines, and a cargo capacity of 9,000 tons. She is fitted with reduction turbines and will have a speed of 12 knots. The cost complete will be \$725,000. A sister boat was launched the following week for the company.

Captain Henry Houdlette has gone on the retired list after nearly 50 years of active service. He had been the commodore of the Oceanic fleet and had seen service on all the seas. Of late years he had been on the San Francisco-Australia run. His retirement is due to eye trouble.

Great Lakes Notes

By A. A. Eiben

JOHN GILCHRIST, manager of the Gilchrist Transportation Co., resigned recently to engage in other business. He will be succeeded by Harry Doville, who has been connected with the company for a number of years. Mr. Doville has been made a director of the Gilchrist company.

The steamer W. P. SNYDER JR. recently established a new Great Lakes cargo record when she left Fort William, Ont., for Buffalo, with 470,670 bushels of wheat on board. The steamer W. GRANT MORDEN cleared at the same time with 464,000 bushels for Port Colborne, Ont., making the combined cargo of these two vessels only 65,330 bushels short of an even million. SNYDER JR. also established another record recently by loading 12,111 tons of ore at the Lake Superior & Ishpeming dock, Marquette, Mich., the largest cargo ever loaded at that pier. The previous record had been made by W. GRANT MORDEN when she loaded 11,371 tons at this dock early in the summer.

The Lake Superior & Ishpeming railroad docks at Marquette, Mich., broke their ore-loading record recently when

eight steamers were loaded with approximately 40,000 tons of ore in 24 hours. The vessels loaded were FRONTE-NAC, CHATTANOOGA, WILLIAM G. MATHER, F. L. ROBBINS, PONTIAC, KOPP, ANDREW UPSON and YOSEMITE.

The new self-unloading steamer W. F. WHITE, which recently lost her unloading boom in Buffalo harbor, has been repaired at the Lorain yards of the American Ship Building Co. The large steel unloading boom was replaced.

The steamer LACKAWANNA, of the Buffalo Transit Co.'s fleet, which stranded on Gull Island reef, Lake Michigan, on Sept. 23, was docked at the yards of the Manitowoc Ship Building & Dry Dock Co., Manitowoc, Wis., on Oct. 7. Extensive repairs will be required, as her shoe and rudder are damaged and 50 plates will have to be taken off. She will be in dry dock about two weeks and the loss will be heavy, as in addition to the repair bill and time lost, her grain cargo was badly damaged.

The steamers BURLINGTON and BENNINGTON, sold recently by the Rutland

Delaware River Notes

By Dr. C. S. Street

OLD sailing masters and those who love the clipper ship or full rigger, are rejoicing on the Delaware river front, from the piers of Bridesburg, down river, to Wilmington. The war has caused a demand for vessels of every description. Little sailing vessels, of less than 1,000 tons have sailed to foreign ports, some coastwise steamers have been drafted, and every available sailing ship is in demand.

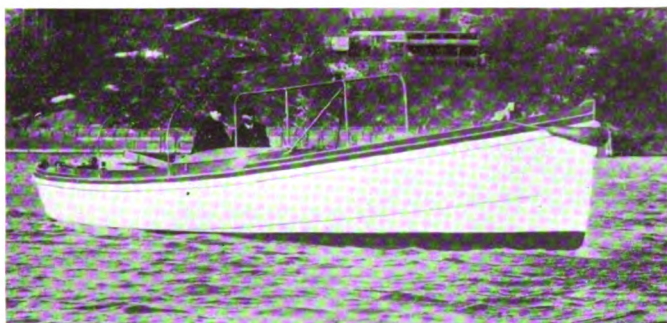
Probably more schooners, barks, brigs, barkentines, and full-rigged ships are on the Atlantic and Pacific today, than at any other time during the past decade. Under these conditions, Philadelphia's harbor has become a most picturesque port. A visit, along the river front a few days ago showed that practically every description of sailing vessel was in port loading, or discharging cargoes. These included the majestic full-rigged steel ship AUSTRALIA and the Italian

den, N. J., reports the sailing from this port to Baltimore with 9,400 long tons of coal of the collier FRANKLIN, one of the nine vessels being built by this company for the Coastwise Transportation Company, Boston. Captain Chase is in command and the vessel is under charter for a long term. Her first cargo is to be delivered at Alexandria, Egypt. She is a self unloader.

Cramps' ship yard reports that the yacht WHILEAWAY, recently launched for Harry Payne Whitney, New York, has proven a successful boat. On her trial trip, she developed a speed of 18½ knots per hour over the Deep Water Point measured course. This is almost a knot over her contract speed. Endurance and engine tests were easily met.

The Du Pont interests, Pennsgrove, N.

Seabury Pilot Boat for Canal Waters



The 35-foot launch shown in the accompanying illustration was designed and built by the Gas Engine & Power Co. and Charles L. Seabury & Co., Consolidated, Morris Heights, New York city, for service as a pilot boat at Panama. She is 35 feet in length and has an extreme beam of 7½ feet. Her four-cylinder 40-horsepower Speedway engine gives her a speed of something over 10½ miles per hour. With the Samson post aft and the windlass bitts forward, there is something extremely business looking about this little ship. There are now 11 of these boats in service at the entrance to the Panama canal.

Transit Co., Ogdensburg, N. Y., to the Alaska Steamship Co., Seattle, Wash., left for New York, en route to the Pacific coast, during the first week in October. Changes will be made in the vessels at New York.

The Great Lakes Towing Co. has been awarded the contract to release the steamer WESTERN STAR, stranded at Robertson rock, Georgian bay. The company's bid was \$58,500, or 65 per cent of the value of the ship, underwriters' option. The deal includes the purchase of the cargo of about 7,000 tons of coal by the Towing company for \$3,000. The vessel is to be delivered to an American port by the wreckers for repairs.

The steamer CHEMUNG, which recently left Buffalo in two pieces on her way to the coast, was put together in record time in the shipyards at Levis, Que., having left the shipyard within three days after her arrival, ready to continue her trip to the coast as one vessel.

steel bark VILLE DE DEPPE. The wooden barkentine, BUCK HAWKINS recalled the "old-days." Most prominent, were the 14 lofty-sparred schooners at the many piers and docks, most of them of American registry and build. A hurried inspection showed. ANNE LORD, EVA B. DOUGLAS, HENRY W. CRAMP, MILLIE R. BOHANNON, MARY E. H. DOW, ROB ROY, SUSIE M. DAVIDSON, WARREN ADAMS, J. HOLMES BIRDSALL, JAMES H. HOYT, FRANK H. BRAINERD, JAMES ROTHWELL, and the British schooner, D. W. B.

The Philadelphia Ship Repair Co. reports that HENRY W. CRAMP has been repaired at their docks, and will load with oil at the Point Breeze works for French ports.

L. W. Shaw, Philadelphia, has had the barge LOTTIE overhauled. She has been given Class A-1 for the coast trade, for a period of eight years.

New York Ship Building Co., Cam-

J., Delaware river, are scouring the vicinity for several ferry boats or large steamers, to be used as hotels for the hundreds of workmen at their powder mills. The ferry ELIZABETH and NANCY J., two old vessels have been converted into hotels, at Hopewell. These boats are equipped better than many land hotels. They are heated by steam. The dining rooms extend the full length of the boats. Lighted by electricity and accommodating 300 persons, these old boats prove valuable as nearby hotels for workmen.

British steamship ST. VERONICA recently loaded locomotives and rails for Vladivostok, at Philadelphia.

Captain John J. Knapp, commandant of the Philadelphia Navy Yard, died Sept. 28, at the Naval Hospital, of apoplexy. He was taken ill while planning a ten-mile service walk. Captain Knapp took charge of the Navy Yard June 18, succeeding Captain W. S. Benson, who was promoted.

Red Hot Tips From the Trade

Pertinent Suggestions and Personal Gossip

THE Panama-Pacific line has just announced that oil fuel will be installed to replace coal in the furnaces of the twin-screw steamers FINLAND and KROONLAND, now engaged in the 17-day run with passengers and freight between New York, Los Angeles and San Francisco, through the Panama canal. The necessary changes will be made during November and December at the Robins dry dock, Brooklyn, where each of the vessels will be equipped with a White mechanical low pressure fuel oil burning system. Besides assuring cleanly decks and eliminating smoke, dust, cinders, coaling delays en route, etc., the introduction of oil fuel is expected to produce not only additional speed but also more continuous speed than is possible with coal, beside effecting a 40 per cent reduction in fuel bills and a decrease in the fireroom staff from 60 to 12 men.

It is interesting to note that the FINLAND and KROONLAND are the largest steamers ever to be equipped in this manner, being 580 feet long, 60 feet broad, with a displacement of 22,000 tons. The fuel, being stored in their double-bottoms, will make available one-third additional cargo capacity, now used for bunkering.

The White system has been installed in the coastwise steamers MASSACHUSETTS and BUNKER HILL, and in the fleets of the Standard Oil Co. of New York, the Texas Oil Co., and others.

Bolinders Catalog

The Bolinders Co., 30 Church street, New York, affiliated with Bolinders, Stockholm, has issued an extremely handsome 25-page catalog entitled "Bolinders Crude Oil Engines for Auxiliary Trading Vessels". In addition to a large number of halftone plates showing typical Bolinders vessels, illustrations and descriptive matter are presented covering the construction of various sizes of Bolinders crude oil engines. In addition, several pages are devoted to a description of the Bolinders plants in Sweden. The use of crude oil engines for auxiliary service in merchant ships is rapidly increasing with the result that there is reason to believe that before long sailing ships without auxil-

ary power will be a thing of the past.

The Baltimore Dry Docks & Ship Building Co., Baltimore, Md., has taken contract recently for four Bolinders equipped oil tankers, each 293 feet in length. These vessels are being constructed for Christopher Hannevig, by designs prepared by Cox & Stevens, naval architects, New York.

Launches Scows

James Davidson, Bay City, Mich., has launched two large dump scows, 132 feet long, 30½ feet beam and 9 feet deep. They are constructed entirely of oak, including the frames, corner pieces, shelf pieces, stanchions, pocket and

A Busy Plant

The Toledo Shipbuilding Co., Toledo, O., is now extremely busy operating with 400 men on the payroll. The force will soon be augmented by 600 men, making 1,000 employes who will work throughout the winter, according to information recently made public. As heretofore stated, the concern has just closed contracts with an eastern syndicate to build two auxiliary steel schooners for the Atlantic coast trade. The new boats will be 261 feet in length, 43 feet wide and 23½ feet deep. They will be equipped with 400-horsepower oil-burning engines.

side walls. The side planking, together with the decks and bottom, are pine. The scows are framed in the Howe truss plan. Each scow has seven pockets with a total capacity of 550 cubic yards. They are equipped with steam winding gear constructed by the Superior Iron Works, Superior, Wis. James Davidson announces that he has a large amount of dry docking and repair work on hand.

Oakum Scarce

Manufacturers of oakum are concerned regarding the future supply of this material owing to the curtailment of imports due to the war. Previous to the outbreak of hostilities a large amount of raw material for oakum

was imported from Germany. This supply has been entirely cut off and the supply coming from England at present is very inadequate. On the other hand the demand for oakum, owing to the revival of ship building has recently increased and manufacturers have found it necessary to take steps to conserve their supplies of raw material. Oakum has recently taken an advance in price and it is believed there will be further advances as the war progresses.

The Hauck Mfg. Co., Brooklyn, N. Y., has issued a bulletin under the heading "Saving Ways in Busy Shops". The bulletin discusses the use of Hauck burners in boiler shops, machine and pipe shops, foundries and in welding and brazing operations. Photographs and descriptions also are included of the company's line of crucible melting furnaces, portable kerosene and oil burners, kerosene torches, melting pots, brazing forges and small furnaces.

The Chicago Pneumatic Tool Co., Chicago, has issued a booklet, describing its new flat disc valve. The advantages claimed for this valve are its simplicity, the independence of its plates in action, the difference in the tension of the springs on the inlet and discharge valves according to the density of the air handled, and its adaptability.

The United States navy department has awarded to the International Oxygen Co., New York, a contract for erecting a hydrogen generating plant for ballooning purposes at the aeronautic station of the navy yard at Pensacola, Fla. The Oxygen company has also received an award from the government for the installation of a system for generating oxygen and hydrogen at the navy yard, Washington, D. C.

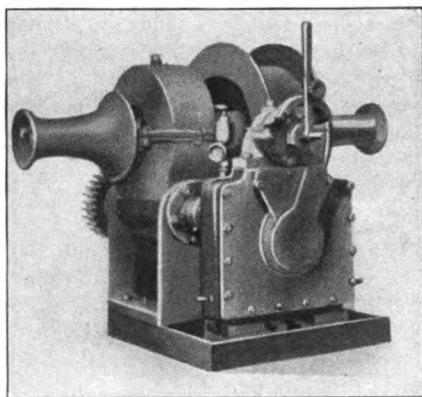
The Armstrong Mfg. Co., Bridgeport, Conn., has issued a 54-page catalog covering its extensive line of stocks, dies, steam fitters' tools and pipe threading machines. Illustrations and descriptive matter covering the various products of this company are included in the catalog.

Equipment Used Afloat and Ashore

Gang Plank Hoist—Shaking Grate

THE accompanying illustration shows an elevator or gang plank hoist, recently perfected by the Dake Engine Co., Grand Haven, Mich. This machine is specially suitable for raising and lowering gang planks on river steamers and is designed for installation either with or without winch heads. It is manufactured in two standard sizes, rated at five and seven horsepower, respectively. The five-horsepower size has 2,700 pounds capacity at 31 feet per minute with a single thread worm and 1,352 pounds capacity at 61 feet per minute with a double thread worm. The seven-horsepower hoist has 6,416 pounds capacity at 18 feet per minute with a single thread worm and 3,200 pounds capacity at 36 feet per minute with a double thread worm.

The Dake Engine Co. also manu-



DAKE GANG PLANK HOIST

factures an interesting spud hoist, designed for operating with steam or compressed air. It is intended for raising and lowering spuds on dredges and is equipped with a reversing engine, which has no dead center. The engine, therefore, will stop and reverse at any point of the stroke simply by reversing the throttle. The hoist is equipped with a pinion for meshing into a rack on the spud. It may, however, be provided with a drum for raising and lowering the spuds with a wire cable. It is built in four standard sizes rated at 7, 10, 15 and 20 horsepower, respectively.

Wheeler & Holcomb, Chicago, have designed a new form of asbestos leggings particularly adapted for use by firemen on steamships. The leggings are made for a heavy grade of asbestos cloth, double-sewed and

stitched. They are adjustable for either a high or low firebox and can be made to fit any waist. These leggings prevent burning the man's pants or overalls and also protect the fireman's body from the heat of the furnace.

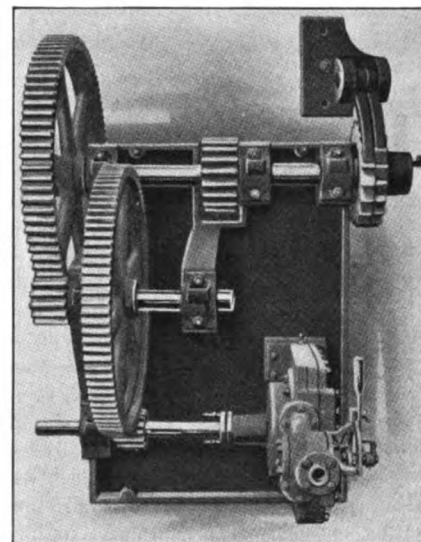
A Quick Repair

Repair work on Great Lakes steamers during the short navigation season is unusual, unless of an imperative character, following a breakdown or accident. When such work is undertaken, it is always rushed, as the vessel owner is anxious to have the ship make as many round trips as possible during the year.

In this connection, repairs made recently by the Superior Iron Works Co., Superior, Wis., on the steamer FRANK H. PEAVEY are interesting. Mechanical stokers, which had been in service for a number of years, were taken out and two sets of shaking and dumping grates were installed. The work was completed in 10 days.

The steamer is equipped with two Babcock & Wilcox water tube boilers, 12 feet in diameter and 11 feet long. In addition to putting in the grates, the Superior company installed new ash pits and shaking fronts. It was necessary to cast one set of grates complete, as only one set was in stock.

The general details of these shaking and dumping grates are shown in the accompanying illustration. These grates comprise only four pieces, supporting bars, end spacing bars, grate bars and shaker bars. The trunnions are placed below the surface of the grate to permit projecting fingers on the ends of the grates.

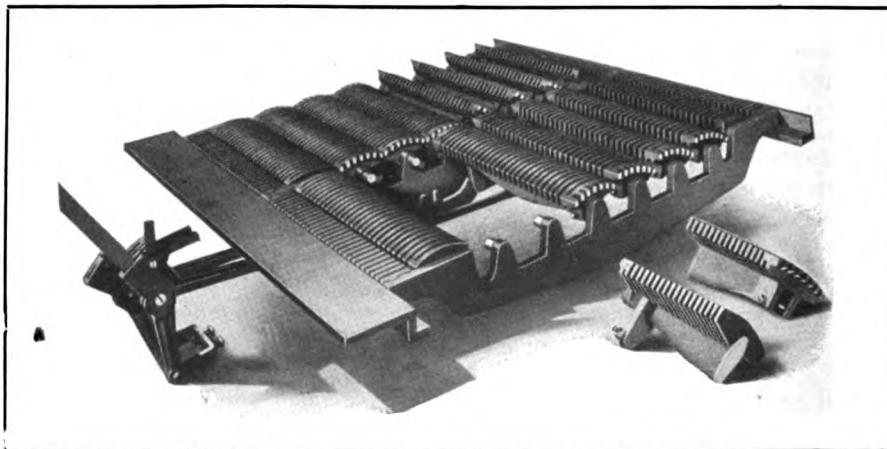


GEARED SPUD HOIST

By this arrangement, the total furnace area is utilized for effective grate surface.

A new safety device that will shorten the time necessary to release lifeboats for launching has been invented by F. A. Jones, general manager of the Eastern Steamship Corporation, Boston, and it has been declared successful by experts and the United States steamboat inspectors. The device will enable one man to release 20 boats in one minute.

The base of the lashings which hold the lifeboats in place is a steel triangle; the lashings are held firm by a steel hook inserted in the triangle and locked by a steel ring over the mouth of the hook. The link protrudes over the rest of the lashing slightly so that a man may run the entire length of the hurricane deck, kicking each ring as he passes, and thus make every lifeboat ready to be swung out on the davits.



SHAKING AND DUMPING GRATE